

ἸΑΤΑΑΣ ΟΥΡΑΝΙΟΣ, 756. 1789

The COELESTIAL ATLAS;

OR, A NEW
E P H E M E R I S

For the YEAR of our LORD 1789.

Being the first after
BISSEXTILE, or LEAP-YEAR.

Wherein are contained
The Heliocentrick and Geocentrick Places of the Planets,
the ECLIPSES of the Luminaries, and other remarkable PHAENOMENA that will happen this Year.

Carefully computed *pp. 2465*
From the genuine TABLES of Dr. EDMUND HALEY,
those of Professor MAYER, and other the latest and most correct
ASTRONOMICAL TABLES.

A L S O

A Compleat ALMANACK, containing the FEASTS and FASTS
of the Church of ENGLAND; the Times of the LUNATIONS;
the Rising and Setting of the Sun, Moon, and Planets, &c.

Adapted to the
Meridian and Latitude of the ancient and honourable
CITY of LONDON.

To which are added,
Several useful TABLES: As, a TABLE of the Sun's
semi-diurnal Arcs, by which the Times of the Sun's Rising and
Setting may be known by Inspection, on every Day in the Year, and
in any Part of GREAT-BRITAIN or IRELAND; *819* DE-TABLE,
and a very correct one of the Eclipses of JUPITER and his first Satellites;
a TABLE of the Sun's Right-Ascension; *820* TABLES of
the most remarkable fixed Stars, corrected from FLAMSTEED'S
Catalogue; and, lastly, a correct TABLE of the Latitudes and Longi-
tudes of the most remarkable Places in the World.

By ROBERT WENTWORTH, 
Teacher of the Mathematicks.

Οἱ ἀγαθοὶ διηγήσονται δοξὰν Θεοῦ.

The FORTIETH IMPRESSION.

L O N D O N :

Printed for the Company of STATIONERS; and sold
by ROBERT HORSFIELD, at their Hall, in Ludgate-street.

[Price NINE-PENCE stitched.]

Ephemerides. K.

Chronological Notes for the Year 1789.

Golden Number	-	-	4	Septuagesima Sunday	Feb. 8
Cycle of the Sun	-	-	6	Shrove Sunday	- 22
The Epact	-	-	3	Easter Day	- April 12
Dominical Letter	-	-	D	Whit Sunday	- May 31
Number of Direction	-	-	22	Trinity Sunday	- June 7
Roman Indiction	-	-	7	Advent Sunday	- Nov. 29

Astronomical CHARACTERS explained.

♈ Aries	♋ Cancer	♎ Libra	♏ Capricorn
♉ Taurus	♌ Leo	♍ Scorpio	♐ Aquarius
♊ Gemini	♍ Virgo	♏ Sagittary	♑ Pisces

♄ Saturn	☉ Sol (the Sun)	☾ Luna (the Moon)	♁ Tellus,
♃ Jupiter	♀ Venus	♊ Moon's N. Node	Terra (or
♂ Mars	☿ Mercury	♋ her S. Node	the Earth)

♄ Conjunction when Planets are in the same Sign, Deg. Min. &c.

* Sextile when 2 Signs dist. | Δ Trine when 4 Signs dist.

□ Quartile when 3 Signs dist. | ☿ Opposition when 6 Signs dist

Of the Four Quarters of the YEAR 1789.

			d	h	m
T HE Spring Quarter begins	-	-	March 20	3	53 morn.
The Summer Quarter begins	-	-	June 21	1	55 morn.
The Autumnal Quarter begins	-	-	September 22	3	28 aftern.
The Winter Quarter begins	-	-	December 21	7	59 morn.

THE beautiful Planet VENUS will be a Morning Star 'till May the 20th; and after that Time she will be an Evening Star to the Year's End.

JUPITER will be a Morning Star 'till the 14th Day of January, then an Evening Star till the 2d of August, at which Time he becomes a Morning Star, and so continues to the Year's End.

The NAMES of the Learned JUDGES of the LAW.

I. The Right Hon. Lord Thurlow, Lord High Chancellor.

Right Honourable Sir Richard Pepper Arden, Knt. Master of the Rolls.

II. In the } Right Hon. Lord Kenyon, L. C. J. Sir W. H. Ashurst, Knt.
 C. Bench. } Francis Buller, Esq; Sir Nash Grose, Knt.

III. In the } R. H. Alex. Lord Loughborough, L. C. J. Sir Henry Gould, Knt.
 C. Pleas. } John Heath, Esq; Sir John Wilson, Knt.

IV. In the } Sir James Eyre, Knt. L. C. B. Sir Beaumont Hotham, Knt.
 Exchequer } Sir Richard Perryn, Knt. Sir Alex. Thompson, Knt.

Sir Alex. M'Donald, Knt. Atto. General; Sir John Scott, Knt. Solic. Gen.

A TABLE of TERMS and Returns for the Year 1789.

Hilary Term begins Jan. 23, ends Feb. 12.

Returns or Effoign-days.				Exc.	Ret.	Ap.	W. D.
In eight Days of St. Hilary,	-	-	Jan. 20	21	22	23	Friday
In fifteen Days of St. Hilary	-	-	27	28	29	30	Friday
On the Mor. of the Purif. of the Bl. V. M.	Feb. 3	4	5	6	7	8	Friday
In eight Days of the Purif. of the Bl. V. M.	9	10	11	12	13	14	Thurs.

Easter Term begins April 29, ends May 25.

In fifteen Days of Easter	-	-	April 26	27	28	29	Wedn.
From Easter Day in three Weeks	-	-	May 3	4	5	6	Wedn.
From Easter Day in one Month	-	-	10	11	12	13	Wedn.
From Easter Day in five Weeks	-	-	17	18	19	20	Wedn.
On the Mor. of the Ascension of the Lord	-	-	22	23	24	25	Monday

Trinity Term begins June 12, ends July 1.

On the Morrow of the Holy Trinity,	-	-	June 8	9	10	12	Friday.
In eight Days of the Holy Trinity,	-	-	14	15	16	17	Weon.
In fifteen Days of the Holy Trinity,	-	-	21	22	23	24	Wedn.
From the Day of the Holy Trin in 3 Weeks	-	-	28	29	30	1	Wedn.

Michaelmas Term begins Nov. 6, ends Nov. 28.

On the Morrow of All Souls	-	-	Nov. 3	4	5	6	Friday.
On the Morrow of St. Martin	-	-	12	13	14	16	Mond.
In eight Days of St. Martin	-	-	18	19	20	21	Saturd.
In fifteen Days of St. Martin	-	-	25	26	27	28	Saturd.

N. B. No Sittings in Westminster-Hall on the Second of February, Ascension-day, and Midsummer-day.

The Exchequer opens eight Days before any Term begins, except Trinity, before which it opens but four Days.

Note, The first and last Days of every Term, are the first and last Days of Appearance.

BIRTH-DAYS of the ROYAL FAMILY.

KING GEORGE III. June 4, 1738	Prince Aug. Fred. Jan. 27, 1773
Prince of Wales, Aug. 12, 1762	Prince Adolph. Fred. Feb. 24, 1774
Prince Frederick, Aug. 16, 1763	Princess Mary, April 25, - 1776
Prince Wm. Henry, Aug. 21, 1765	Princess Sophia, Nov. 3, - 1777
Prs. Cha. Aug. Mat. Sept. 29, 1766	Princess Amelia, Aug. 7, - 1783
Prince Edward, Nov. 2, - 1767	Queen Charlotte, May 19, 1744
Prs. Augusta Sophia, Nov. 8, 1768	Prs. Augusta of Brun. Aug. 11, 1737
Prs. Elizabeth, May 22, - 1770	Duke of Gloucester, Nov. 25, 1743
Prince Ernest Augustus, June 5, 1771	Duke of Cumberland, Nov. 7, 1745

SOVEREIGNS of EUROPE, their Accession, &c.

Kingdoms, &c.	To whom subject.	When born..	Began to reign.
England, &c.	George III.	June 4, 1738	Oct. 25, 1760
France	Lewis XVI.	Aug. 23, 1754	May 10, 1774
Russia	Catharine II.	May 2, 1729	July 9, 1762
Spain	Charles III.	Jan. 20, 1716	Aug. 10, 1759
Portugal	Mary	Dec. 7, 1734	Feb. 24, 1777
Prussia	Frederic IV.	Sept. 25, 1744	Aug. 17, 1786
Denmark & Norway	Christian VII.	Jan. 29, 1749	Jan. 14, 1766
Sweden	Gustavus III.	Jan. 24, 1746	Feb. 13, 1771
Germany	Joseph	Mar. 13, 1741	Aug. 18, 1765
Poland	Stanislaus III.	Jan. 17, 1732	Nov. 25, 1764
Holland	William V.	March 8, 1748	Oct. 11, 1751
Papedom	Pius VI.	Dec. 27, 1717	Feb. 18, 1775
Sardinia	Victor	June 26, 1726	Mar. 20, 1773
Ottoman Empire	Achmet IV.	Nov. 5, 1719	Jan. 21, 1774

The FULL WEIGHT of the Coins, with the LEAST WEIGHT allowed to pass of the Gold Coin.

GOLD.		Full Wt.	SILVER.		Full Wt.
Wt. allowed.	dw. gr.	dw. gr.			dw. gr.
Guinea, - - 5 8	5 9 $\frac{30}{100}$		A Crown, - - -		19 8 $\frac{16}{100}$
Half Guinea, - 2 16	2 16 $\frac{64}{100}$		Half Crown, - - -		9 16 $\frac{8}{100}$
Quarter Guinea, 1 8	1 8 $\frac{32}{100}$		Shilling, - - -		3 20 $\frac{8}{100}$
			Six Pence, - - -		1 22 $\frac{4}{100}$

According to the above proportions it appears, that the value of a lb. of silver is 62s. or 3l. 2s. and of a lb. of gold is 44½ guineas, or 45l. 14s. 6d. Also that the oz. of silver is 5s. 2d. and the oz. of gold 3l. 17s. 10½d. So that the value of the standard gold is 15 times that of the silver, and 1-14th more.

A TABLE of the KINGS and QUEENS of ENGLAND
since the CONQUEST.

Kings and Queens	Born A.D.	Began their Reign	Reigned Y. M. D.	Rem. Deaths and Dethroned	Where buried
Will. Conq.	1027	1066 Oct. 14	20 10 20	Burst by Leap. Slain accidentally.	Caen, Norm
Will. Rufus	1057	1087 Sept. 9	12 10 24		Winchester
Henry I.	1068	1100 Aug. 2	35 3 29		Reading
Stephen.	1105	1135 Dec. 1	18 10 24		Feverham
Henry II.	1133	1154 Oct. 25	34 8 11	Slain with an Arrow.	Fonteveraud
Richard I.	1156	1189 July 6	9 9 0		Fonteveraud
John	1165	1199 April 6	17 6 1		Worcester
Henry III.	1207	1216 Oct. 19	56 0 28		Westminster
Edward I.	1239	1272 Nov. 16	34 7 21	Dep. & murd.	Westminster
Edward II.	1284	1307 July 7	19 6 18		Gloucester
Edward III.	1312	1327 Jan. 25	50 4 27		Westminster
Richard II.	1366	1377 June 21	22 3 8		Westminster
Henry IV.	1367	1399 Sept. 29	13 5 20	Dep. & murd.	Canterbury
Henry V	1389	1413 Mar. 20	9 5 11		Westminster
Henry VI.	1421	1422 Aug. 31	38 6 4		Windsor
Edward IV.	1442	1461 Mar. 4	22 1 5	Murder'd. Slain in Battle.	Windsor
Edward V.	1471	1483 April 9	0 2 15		Not known
Richard III.	1443	1483 June 22	2 2 0		Leicester
Henry VII.	1456	1485 Aug. 22	23 8 0		Westminster
Henry VIII.	1492	1509 April 22	37 9 6		Windsor
Edward VI.	1537	1547 Jan. 28	6 5 8		Westminster
Mary I.	1516	1553 July 6	5 4 11		Westminster
Elizabeth	1533	1558 Nov. 17	44 4 7	Abdicated.	Westminster
James I.	1566	1603 Mar. 24	22 0 3		Windsor
Charles I.	1600	1625 Mar. 27	23 10 3		Westminster
Charles II.	1630	1649 Jan. 30	36 0 7		St. Germain
James II.	1633	1685 Feb. 6	4 0 7		Westminster
Mary II.	1662	1689 Feb. 13	5 10 15		Westminster
William III.	1650	1689 Feb. 13	13 0 25		Westminster
Anne	1665	1702 Mar. 8	12 4 24		Westminster
George I.	1660	1714 Aug. 1	12 10 10		Hanover
George II.	1683	1727 June 11	33 4 14		Westminster
George III.	1738	1760 Oct. 25	Crowned Sept. 22, 1761.		

Above you view the Rise and Fall of Kings,
Whose Fate sometimes a useful Lesson brings.
Well if all Men could profit from the past!
Each know his Duty, each excel the last,
And justly execute his stated Task.

A TABLE of the most Reverend, Right Reverend, and Reverend, the ARCHBISHOPS, BISHOPS and DEANS, exercising Ecclesiastical Jurisdiction, 1789.

BISHOPS.	Sees.	Date.	Succeeded.	DEANS.
Dr. John Moore	<i>Bangor</i>	1775	Ewer deceased	
Arch-Bishop	<i>Canterb. A. B.</i>	1783	Cornwallis dec.	Dr. Horne
Dr. Will. Markham	<i>Chester</i>	1771	Keene transl.	
Arch-Bishop	<i>York A. B.</i>	1777	Drummond de.	Dr. J. Fountayne
Dr. Beilby Porteus	<i>Chester</i>	1776	Markham tran.	
	<i>London</i>	1787	Lowth decaf.	Bishop Pretyman
Dr. Tho. Thurlow	<i>Lincoln</i>	1779	Green dec.	
	<i>Durham</i>	1787	Egerton dec.	Hon. W. Digby
	<i>Litch & Cov.</i>	1771	Egerton transl.	
Hon. Dr. B. North	<i>Worcester</i>	1774	Johnson decaf.	
	<i>Winchester</i>	1781	Thomas decaf.	Dr. Ogle
Sir W. Ashburnham	<i>Chichester</i>	1754	Mawson transl.	Dr. Harward
Dr. Charles M ^{rs}	<i>St. David's</i>	1766	L. with transl.	
	<i>Bath & Wells</i>	1774	Willes deceased	Ld. Fr. Seymour
Dr. J. Shipley	<i>Landaff</i>	1769	Ewer transl.	
	<i>St. Asaph</i>	1769	Newcome dec.	Mr. W. D. Shipley
Dr. S. Barrington	<i>Landaff</i>	1769	Shipley transl.	
Dr. John Hinchliffe	<i>Salisbury</i>	1782	Hume dec.	Dr. John Ekins
	<i>Peterborough</i>	1769	Lamb dec.	Dr. Ch. Tarrant
	<i>St. David's</i>	1774	Moss transl.	
H. Dr. James Yorke	<i>Gloucester</i>	1779	Warburton dec.	
	<i>Ely</i>	1781	Keene deceased	Dr. Cooke
Dr. John Thomas	<i>Rocheſter</i>	1774	Pearce dec.	Dr. Dampier
Dr. Richard Hurd	<i>Litch. & Cov.</i>	1775	B. North tr.	
	<i>Worcester</i>	1781	B. North tr.	Dr. St. John
Dr. John Butler	<i>Oxford</i>	1777	Lowth transl.	
	<i>Hereford</i>	1788	Harley decaf.	Dr. Wetherell
Dr. John Roſs	<i>Exeter</i>	1778	Keppel dec.	Dr. Buller
Dr. John Warren	<i>St. David's</i>	1779	Yorke transl.	
	<i>Bangor</i>	1783	Moore transl.	Dr. Tho. Lloyd
Dr. J. Cornwallis	<i>Litch. & Cov.</i>	1781	Hurd transl.	Dr. Proby
Dr. Samuel Hall fax	<i>Glouceſter</i>	1781	Yorke transl.	Dr. Joſiah Tucker
Dr. Lewis Bagot	<i>Bristol</i>	1782	Newton dec.	
	<i>Norwich</i>	1783	Yonge dec.	Dr. P. Lloyd
Dr. Richard Watſon	<i>Landaff</i>	1782	Barrington tr.	Dr. Adams, A. D.
Dr. Edward Smalwel	<i>St. David's</i>	1783	Warren transl.	
	<i>Oxford</i>	1788	Butler transl.	Dr. Jackson
Dr. Chriſt. Wilſon	<i>Bristol</i>	1783	Bagot transl.	Dr. Hallam
Dr. W. Pretyman	<i>Lincoln</i>	1787	Thurlow tran.	Dr. Kaye
Dr. John Douglas	<i>Carlisle</i>	1787	Law dec.	Dr. Jeffery Ekins
Dr. William Cleaver	<i>Cheſter</i>	1788	Porteus tran.	Dr. Cotton
Dr. Samuel Horſley	<i>St. David's</i>	1788	Smalwell tr.	Mr. Wollaſton, P.
	<i>Winſinſter</i>	1768		Biſhop Thomas
Dr. Claudius Crigan	<i>Sodor & Man</i>	1784	Mafon dec.	
	<i>Windſor</i>	1788		Biſhop Douglas

A General INTEREST TABLE,
by which the Interest of any Sum, at any Rate, and for any Time,
may be readily found.

Days	3 per Cent.				$3\frac{1}{2}$ per Cent.				4 per Cent.				$4\frac{1}{2}$ per Cent.				5 per Cent.			
	l.	s.	d.	q.	l.	s.	d.	q.	l.	s.	d.	q.	l.	s.	d.	q.	l.	s.	d.	q.
1			1	3			2	1			2	2			3	0			3	0
2			3	3			4	2			5	1			6	0			6	2
3			5	3			6	3			7	3			8	3			9	3
4			7	3			9	0			10	2			11	3		1	1	0
5			9	3			11	2		1	1	1		1	2	3		1	4	1
6			11	3		1	1	3		1	3	3		1	5	3		1	7	2
7		1	1	3		1	4	0		1	6	1		1	8	3		1	11	0
8		1	3	3		1	6	1		1	9	0		1	11	3		2	2	1
9		1	5	3		1	8	2		1	11	2		2	2	2		2	5	2
10		1	7	2		1	11	0		2	2	1		2	5	2		2	8	3
20		3	3	1		3	10	0		4	4	2		4	11	1		5	5	3
30		4	11	0		5	9	0		6	6	3		7	4	3		8	2	2
40		6	6	3		7	8	0		8	9	0		9	10	1		10	11	2
50		8	2	2		9	7	0		10	11	2		12	3	3		13	8	1
60		9	10	1		11	6	0		13	1	3		14	9	2		16	5	1
70		11	6	0		13	5	0		15	4	0		17	3	1		19	2	0
80		13	1	3		15	4	0		17	6	1		19	8	3		1	11	0
90		14	9	2		17	3	0		19	8	2		2	2	11		4	7	3
100		16	5	1		19	2	0	1	1	11	0		4	8	0		7	4	3
200	1	12	10	2	1	18	4	12	3	10	0	2		9	3	3	2	14	9	2
300	2	9	3	3	2	17	6	13	5	9	0	3		13	11	1	4	2	2	1

N. B. This Table contains the interest of 100l. for all the several days in the 1st column, and at the several rates of 3, $3\frac{1}{2}$, 4, $4\frac{1}{2}$, and 5 per cent. in the other 5 columns.

To find the interest of 100l. for any other time, as 1 year and 278 days, at $4\frac{1}{2}$ per cent. Take the sums for the several days here annexed.

The interest for 1 year	4	10	0	0
Against 200 days is	-	2	9	3
70 days	-	0	17	3
8 days	-	0	1	11
Interest required	-	7	18	6

For any other Sum than 100l. First, 3 times the above sum, find for 100l. as above, and take it so (for 300l.) is - 23 15 8 1 many times or parts as the sum is of $\frac{1}{2}$ (for 50l.) is - 3 19 3 1 100l. Thus, to find for 355l. at $4\frac{1}{2}$, $\frac{1}{10}$ of this (for 5l.) is - 0 7 11 0 for 1 year and 278 days, So for 355 it is - 28 2 10 2

When the interest is required for any other rate than those in the table, it may easily be made out from them. So $\frac{1}{2}$ of 5 is $2\frac{1}{2}$, $\frac{1}{2}$ of 4 is 2, $\frac{1}{2}$ of 3 is $1\frac{1}{2}$, $\frac{1}{3}$ of 3 is 1, $\frac{1}{6}$ th of 3 is $\frac{1}{2}$, and $\frac{1}{12}$ th of 3 is $\frac{1}{4}$. And so, by parts, or by adding or subtracting, any rate may be made out.

The LUNATIONS.

First quarter the 4th day, at 24 minutes past 4 afternoon.

Full Moon the 11th day, at 46 minutes past 5 afternoon.

Last quarter the 18th day, at 39 minutes past 8 morning.

New Moon the 26th day, at 21 minutes past 6 morning.

M	Sundays & other D remark. days	☉ rises	☉ sets	☉'s declin.	☾'s declin.	☾ rises & sets	☾ south	Clock bef. ☉	
1	Circumcision	8 4	3 56	22 57	4 19	9 a 36	3 a 40	4 23	
2		8 4	3 56	22 52	on 6	10 4	4 22	4 51	
3		8 3	3 57	22 46	4 32	11 46	5 3	5 19	
4	S. aft. Chrif.	8 2	3 58	22 39	8 53	morn.	5 46	5 46	
5	Old Chrif. Day	8 2	3 58	22 32	12 57	0 54	6 32	6 1	
6	Epiphany	1 w. 3	3 59	22 25	16 3	2 4	7 21	6 39	
7		8 0	4 0	22 17	19 27	3 14	8 14	7 4	
8	Lucian	7 59	4 1	22 9	21 20	4 25	9 11	7 30	
9		7 58	4 2	22 0	21 57	5 30	10 10	7 54	
10		7 57	4 3	21 51	21 8	6 20	11 13	8 18	
11	S. aft. Epiph.	7 56	4 4	21 42	18 49	☾ rises	morn	8 42	
12	Plow Mon. O. N. Y. D.	4	5	21 32	15 12	5 a 42	0 13	9 4	
13	Hil. C. m. T. b.	7 54	4 6	21 21	10 30	7 8	1 11	9 27	
14	Oxf. Term beg.	7 52	4 8	21 11	5 20	8 31	2 7	9 48	
15		7 51	4 9	20 59	0 8	8 53	3 0	10 9	
16		7 50	4 10	20 48	5 27	11 13	3 52	10 29	
17	O. Twelf. h Day	7 49	4 11	20 36	10 20	morn.	4 42	10 48	
18	S. af. Ep. Q. Ch. b. d. k.	Prisca	20 23	14 32	0 30	5 32	11 7		
19		7 46	4 14	20 11	17 54	1 45	6 23	11 25	
20	Febian	7 45	4 15	19 58	20 17	2 55	7 14	11 4	
21	Agnes	7 43	4 17	19 44	21 3	3 8	8 5	11 59	
22	Vincent	7 42	4 18	19 30	21 52	4 52	8 5	12 15	
23	Hil. Term beg.	7 40	4 20	19 18	21 5	5 38	9 46	12 30	
24		7 39	4 21	19 1	19 20	6 17	10 35	12 44	
25	S. a. Ep. Con. of St. Paul	4 2	18 46	16 45	6 48	11 22	12 58		
26		7 36	4 24	18 3	13 26	sets	0 a 6	13 10	
27	Pr. Aug. Fr. b.	7 34	4 26	18 10	9 4	6 1	0 48	13 22	
28		7 3	4 27	18 0	5 3	7 17	1 31	13 33	
29		7 31	4 2	17 43	1 14	8 21	2 11	13 43	
30	K. Cha. mart.	7 2	4 31	17 27	3 n 11	9 25	2 55	13 53	
31		7 28	4 32	17 10	7 10	1 32	3 3	14 1	
Day	Day increaf.	Length of Day.	Helioc. long. ♀	Helioc. long. ♂	Helioc. long. ♀	Helioc. long. ♂	Helioc. long. ♀	Helioc. long. ♂	h sets.
1	0 8	7 52	1X37	23 48	17 47	11 38	11 34	2 15	8 a 55
7	0 16	8 0	11 49	24 18	13 21	1 45	21 15	6 12	8 31
13	0 28	8 12	12 0	24 47	16 58	23 5	15 4	3 11	8 8
19	0 44	8 28	12 12	25 17	20 36	29 58	10 32	20 48	7 46
25	1 2	8 46	12 24	25 46	24 15	6 5	20 7	10 14	7 13

1789.

January.

9

Days	Day lg. begins	Day lg. ends	Durat. twilig.	Pl. D's node	h's latitude	u's latitude	♂'s latitude	♀'s latitude	♂'s latitude
1	5 59	6 1	2 5	5 45	1 49	0 n 25	0 s 52	1 n 47	0 s 35
7	5 56	6 4	2 4	5 37	1 48	0 26	0 54	1 34	1 12
13	5 52	6 8	2 2	5 18	1 48	0 27	0 56	1 19	1 40
19	5 46	6 14	2 0	4 59	1 47	0 28	0 58	1 3	1 58
25	5 39	6 21	1 58	4 40	1 47	0 28	1 0	0 45	2 4
Day	☉'s longitude		D's long.	D's latitude	h's long.	u's long.	♂'s long.	♀'s long.	♂'s long.
1	11 38	10	6 31	5 n 11	6 50	26 35	10 33	5 24	28 36
2	12 39	22	18 25	5 5	6 55	26 27	11 18	6 37	0 7
3	13 40	33	0 25	4 46	7 1	26 20	12 4	7 51	1 39
D	14 41	44	12 37	4 14	7 6	26 12	12 50	9 4	3 11
5	15 42	54	25 5	3 29	7 11	26 4	13 37	10 14	4 43
6	16 44	4	7 53	2 33	7 17	5 56	14 23	11 31	6 16
7	17 45	13	21 6	1 26	7 22	25 48	15 9	12 45	7 50
8	18 46	21	4 46	0 13	7 28	25 40	15 55	13 58	9 24
9	19 47	30	18 55	1 s 3	7 33	25 32	16 41	15 12	10 58
10	20 48	37	3 30	2 18	7 39	25 24	17 28	16 25	12 33
D	21 49	43	18 26	3 24	7 45	25 16	18 14	17 3	14 8
12	22 50	50	3 36	4 17	7 51	25 8	19 0	18 53	15 44
13	23 51	56	18 48	4 53	7 57	25 0	19 47	20 7	17 20
14	24 53	1	3 53	5 7	8 3	24 52	20 33	21 20	18 57
15	25 54	6	18 41	5 1	8 9	24 44	21 20	22 34	20 34
16	26 55	11	3 7	4 35	8 15	24 35	22 7	23 48	22 12
17	27 56	15	17 7	3 54	8 22	24 27	22 53	25 2	23 50
D	28 57	19	0 41	3 0	8 28	24 19	23 40	26 16	25 29
19	29 58	23	13 51	1 59	8 34	24 11	24 27	27 30	27 8
20	30 59	26	26 41	0 53	8 40	24 3	25 14	28 44	28 48
21	2 0	28	9 14	0 n 15	8 46	23 55	26 0	29 58	0 29
22	3 1	30	21 33	1 20	8 53	23 47	26 47	1 12	2 10
23	4 2	32	3 44	2 20	8 59	23 40	27 34	2 26	3 52
24	5 3	32	15 47	3 14	9 5	23 31	28 20	3 40	5 35
D	6 4	32	27 4	3 5	9 11	23 24	29 7	4 54	7 18
26	7 5	31	9 39	4 32	9 19	23 16	29 54	6 8	9 2
27	8 6	29	21 32	4 53	9 25	23 9	0 40	7 22	10 46
28	9 7	26	3 24	5 2	9 32	23 1	1 27	8 36	12 31
29	10 8	21	15 16	4 58	9 39	22 54	2 14	9 50	14 17
30	11 9	15	27 12	4 41	9 46	22 46	3 11	11 4	16 3
31	12 10	8	9 13	4 11	9 53	22 39	3 48	12 18	17 50
Days	u's rises	♂'s rises	♀'s rises	♂'s rises	h's declin.	u's declin.	♂'s declin.	♀'s declin.	♂'s declin.
1	5 a 0	8 m 4	5 m 6	7 m 17	10 n 42	21 n 16	23 s 55	19 s 28	24 s 3
7	4 20	7 55	5 20	7 35	10 30	21 26	23 30	20 48	24 26
13	3 50	7 45	5 31	7 47	10 16	21 36	22 56	21 47	24 0
19	3 29	7 35	5 41	7 56	10 2	21 45	22 13	22 24	23 42
25	2 50	7 23	5 50	fets	9 47	21 54	21 20	22 37	20 20

10 February hath XXVIII Days. White.

The LUNATIONS.

First quarter the 5th day, at 25 minutes past 9 morning.

Full Moon the 10th day, at 8 minutes past 4 morning.

Last quarter the 16th day, at 10 minutes past 10 night.

New Moon the 25th day, at 14 minutes past 1 morning.

M	Sundays & other	☉	☉	☉'s	☉'s	☉'s	☉'s	☉'s	☉'s
D	remark. days	rises	sets	declin	declin.	& sets	south	Clock	☉
1	4 S. aft. Epiph.	7 26	4 34	16 53	11 n 35	11 a 41	4 a 19	14 9	
2	Purif. Candlem.	7 24	4 36	16 35	15 16	morn	5 6	14 16	
3	Bl' e	7 23	4 37	16 18	18 19	0 40	5 56	14 21	
4		7 21	4 3	15 59	20 33	1 56	6 44	14 27	
5	Agatha	7 19	4 41	15 41	21 41	3 4	7 46	14 31	
6		7 17	4 43	15 23	21 3	4 4	8 45	14 34	
7		7 15	4 45	15 4	19 58	4 5	9 46	14 37	
8	Septuagesima S.	7 14	4 46	14 45	17 1	5 3	10 45	14 39	
9		7 12	4 48	14 25	12 52	6 14	11 43	14 40	
10		7 10	4 5	14 6	7 51	(rises	morn	14 40	
11		7 8	4 52	13 46	2 22	7 a 18	0 40	14 39	
12	Hil. Term ends	7 6	4 54	13 26	3 s 12	8 4	1 34	14 38	
13	Old Cand. D.	7 4	4 56	13 6	8 25	10 4	2 27	14 36	
14	Valentine	7 3	4 57	12 45	13 2	11 22	3 20	14 33	
15	Sexagesima S.	7 1	4 59	12 25	16 46	morn	4 13	14 30	
16		6 59	5 1	12 4	19 30	0 38	5 6	14 25	
17		6 57	5 3	11 43	21 9	1 44	5 58	14 21	
18		6 55	5 5	11 21	21 41	2 44	6 50	14 15	
19		6 53	5 7	11 0	21 10	3 34	7 41	14 9	
20		6 51	5 9	10 38	19 40	4 14	8 30	14 2	
21		6 49	5 11	10 17	17 20	4 4	9 18	13 54	
22	Quinq. Shro. S.	6 47	5 13	9 55	14 17	5 16	10 3	13 46	
23	[thias Pr. AF. b.	6 45	5 15	9 33	10 4	5 41	0 47	13 37	
24	Shro. T. St. Mat.	6 43	5 17	9 11	6 4	6 11	11 29	13 28	
25	Ash Wednesday	6 41	5 19	8 48	2 24	(sets	0 21	13 18	
26		6 39	5 21	8 26	1 n 58	7 a 18	0 53	13 8	
27		6 38	5 22	8 3	6 18	8 25	1 3	12 57	
28		6 36	5 24	7 40	10 26	9 32	2 19	12 45	
Day	Day	Length	Helioc.	Helioc.	Helioc.	Helioc.	Helioc.	Helioc.	h
increas.	of day	long. h	long. 2	long. 3	long. 4	long. 5	long. 6	long. 7	sets
1	1 24	9 8	12 X 37	26 20	28 34	13 11	1 17	6 X 37	7 a 1
7	1 46	9 30	12 40	26 40	2 16	19 16	10 49	3 55	6 41
13	2 8	9 52	13 12	27 18	6 25	19 20	28 6	8 20	6 21
19	2 30	10 14	13 12	27 48	9 46	1 22	29 50	13 12	6 2
25	2 54	10 38	13 24	28 17	13 32	7 24	9 20	20 36	5 44

1789.

February.

11

Days	Day lig. begins	Day lig. ends	Durat. twilig.	Pl. D's node	h's latitude	u's latitude	δ's latitude	♀'s latitude	♂'s latitude
1	5 30	6 30	1 56	4 ♀ 18	1 s 47	0 n 29	1 s 2	0 n 25	1 s 51
7	5 22	6 38	1 53	3 58	1 47	0 29	1 3	0 7	1 18
13	5 13	6 47	1 51	3 39	1 47	0 30	1 4	0 s 10	0 19
19	5 2	6 59	1 52	3 20	1 47	0 30	1 5	0 26	1 n 1
25	4 50	7 10	1 52	3 1	1 47	0 31	1 6	0 41	2 29
Days	☉'s longitude	☽'s long.	☽'s latitude	h's long.	u's long.	δ's long.	♀'s long.	♂'s long.	
D 1	13 10 59	21 ♀ 24	3 n 30	10 X 0 22 26 32	4 n 35	13 1 33	19 n 38		
2	14 11 49	3 8 47	2 37	10 7 22 25	5 22	4 47	21 26		
3	15 12 37	16 29	1 36	10 13 22 18	0 9	16 1	23 14		
4	16 13 22	29 33	0 29	10 20 22 12	6 55	17 15	25 1		
5	17 14 7	13 II 3	0 s 43	10 27 22 5	7 43	18 29	26 49		
6	18 14 50	27 2	1 54	10 33 21 59	8 30	19 43	28 37		
7	19 15 32	11 25 30	3 1	10 40 21 52	9 17	20 57	0 X 24		
D 8	20 16 11	26 24	3 57	10 47 21 46	10 4	22 11	2 11		
9	21 16 49	11 2 38	4 37	10 54 21 40	10 51	23 26	3 57		
10	22 17 26	27 0	4 58	11 1 21 33	11 38	24 40	5 42		
11	23 18 1	12 17 19	4 58	11 8 21 27	12 26	25 54	7 26		
12	24 18 35	27 25	4 36	11 15 21 21	13 13	27 8	9 8		
13	25 19 8	2 6	3 57	11 23 21 16	14 0	28 22	10 47		
14	26 19 39	26 20	3 4	11 30 21 10	14 47	29 36	12 23		
D 15	27 20 9	10 m 3	2 2	11 37 21 5	15 34	0 n 50	13 55		
16	28 20 37	13 17	0 55	11 45 21 0	16 22	2 5	15 24		
17	29 21 6	6 ♀ 7	0 n 13	11 52 20 55	17 9	3 19	16 48		
18	X 0 21 31	18 36	1 18	11 59 20 50	17 56	4 33	18 7		
19	1 21 55	0 5 50	2 18	12 7 20 46	18 43	5 48	19 20		
20	2 22 19	12 53	3 11	12 14 20 41	19 30	7 2	20 26		
21	3 22 40	24 49	3 55	12 21 20 37	20 18	8 16	21 25		
D 22	4 23 1	6 n 41	4 28	12 29 20 33	21 5	9 31	22 17		
23	5 23 19	18 32	4 50	12 36 20 29	21 52	10 45	23 0		
24	6 23 36	0 X 24	4 59	12 44 20 25	22 40	11 50	23 34		
25	7 23 52	12 18	4 55	12 51 20 21	23 27	13 14	23 58		
26	8 24 5	24 15	4 38	12 58 20 18	24 14	14 28	24 11		
27	9 24 17	6 ♀ 17	4 9	13 6 20 15	25 2	15 42	24 16		
28	10 24 26	18 25	3 28	13 13 20 12	25 49	16 57	24 R 16		
Days	☿ sets	♂ rises	♀ rises	♂ sets	h's declin.	u's declin.	δ's declin.	♀'s declin.	♂'s declin.
1	6 m 40	7 m 11	5 m 57	5 a 3	9 s 29	22 n 42	20 s 9	22 s 22	16 s 43
7	6 1	6 59	6 1	5 44	9 13	22 11	18 58	21 43	12 33
13	5 49	6 47	6 2	6 23	8 57	22 17	17 41	20 41	7 49
19	5 24	6 34	6 0	6 53	8 40	22 22	16 16	19 16	3 17
25	5 1	6 20	5 58	7 1	8 24	22 26	14 45	17 31	0 7

The LUNATIONS.

First quarter the 4th day, at 51 minutes past 10 night.

Full Moon the 11th day, at 50 minutes past 1 afternoon.

Last quarter the 18th day, at 15 minutes past 2 afternoon.

New Moon the 26th day, at 46 minutes past 6 afternoon.

M	Sundays & other	☉	☉	☉'s	☉'s	☉rises	☉	Clock
D	remark. days	rises	sets	declin.	declin.	& sets	South	bef. ☉
1	Sun. in Lent	David	5 26	7 s 18	14 n 10	10 a 39	3 a 5	12 33
2	Chad.	6 32	5 28	6 55	17 20	11 48	3 54	12 20
3		6 30	5 30	6 32	19 45	morn	4 45	12 7
4	Ember Week	6 28	5 32	6 9	21 11	0 54	5 39	11 54
5		6 26	5 34	5 45	21 28	1 53	6 35	11 40
6		6 24	5 36	5 22	20 29	2 46	7 33	11 25
7	Perpetua	6 22	5 38	4 59	18 12	3 33	8 31	11 10
8	Sund. in Lent	6 20	5 40	4 35	14 41	4 10	9 28	10 55
9		6 18	5 42	4 12	10 11	4 42	10 25	10 39
10		6 16	5 44	3 48	4 59	5 11	11 20	10 23
11		6 14	5 46	3 25	0 s 32	☉rises	morn	10 7
12	Gregory	6 12	5 48	3 1	5 58	7 a 39	0 15	9 50
13		6 10	5 50	2 38	10 57	9 0	1 9	9 33
14		6 8	5 52	2 14	15 9	10 19	2 4	9 16
15	Sund. in Lent	6 6	5 54	1 50	18 22	11 33	2 59	8 58
16		6 4	5 56	1 27	20 27	morn	3 54	8 41
17	St. Patrick	6 2	5 58	1 3	21 22	0 38	4 48	8 23
18	Edn. K. W. S.	6 0	6 0	0 39	21 9	1 32	5 40	8 5
19		5 58	6 2	0 16	19 56	2 16	6 31	7 47
20		5 56	6 4	0 n 8	17 50	2 55	7 20	7 29
21	Benedict	5 54	6 6	0 32	15 0	3 26	8 7	7 10
22	Midlent Sund.	5 52	6 8	0 55	11 34	3 50	8 52	6 52
23		5 50	6 10	1 19	7 42	4 13	9 35	6 33
24		5 48	6 12	1 43	3 32	4 34	10 17	6 15
25	Lady Day	5 46	6 14	2 6	0 n 48	4 53	10 59	5 56
26		5 44	6 16	2 30	5 9	☉rises	11 41	5 38
27		5 42	6 18	2 53	9 20	7 a 31	0 a 25	5 19
28		5 40	6 20	3 17	13 10	8 39	1 11	5 1
29	Sund. in Lent	5 38	6 22	3 40	16 20	9 52	1 59	4 42
30		5 36	6 24	4 3	19 5	10 54	2 50	4 24
31		5 34	6 26	4 26	20 4	11 56	3 43	4 5
D	Day	Length	Helioc.	Helioc.	Helioc.	Helioc.	Helioc.	H
	increaf.	of day	long. ♀	long. ♀	long. ♂	long. ☉	long. ♀	sets.
1	3 8	10 52	13 32	18 37	16 3	11 22	5 39	13 19
7	3 32	11 16	13 44	19 6	19 50	17 25	8 12	12 44
13	3 56	11 40	13 55	19 35	23 38	23 23	4 37	7 1
19	4 20	12 4	14 7	0 8	27 26	29 21	4 52	27 37
25	4 44	12 28	14 10	0 33	1 15	5 17	23 35	15 52

1789.

March.

13

Day	Day lig. begins	Day lig. ends	Durat. twilig.	Pl. D's node	h's latitude	u's latitude	δ's latitude	♀'s latitude	♂'s latitude
1	4 43	7 18	1 52	2 f 45	1 s 47	0 n 31	1 s 6	0 s 50	3 n 17
7	4 30	7 31	1 53	2 29	1 48	0 31	1 6	1 2	3 39
13	4 17	7 44	1 54	2 10	1 48	0 31	1 6	1 12	2 53
19	4 5	7 57	1 55	1 31	1 48	0 31	1 6	1 20	1 28
25	3 50	8 11	1 57	1 32	1 40	0 31	1 5	1 25	0 0
Days	☉'s longitude	D's long.	D's latitude	h's long.	u's long.	δ's long.	♀'s long.	♂'s long.	
D	X 11 24 34	0 84	2 n 37	13 X 20	20 10	26 36	18 11	24 X 4	
2	12 24 39	13 9	1 37	13 27	20 8	27 23	19 25	23 42	
3	13 24 42	25 51	0 32	13 34	20 5	28 10	20 39	23 11	
4	14 24 42	8 II 52	0 s 37	13 42	20 3	28 58	21 53	22 34	
5	15 24 40	22 14	1 46	13 49	20 1	29 45	23 8	21 50	
6	16 24 36	6 51	2 51	13 56	20 9	0 X 32	24 22	21 1	
7	17 24 30	20 15	3 47	14 4	19 57	1 19	25 36	20 8	
D	18 24 22	4 54	4 30	14 11	19 56	2 6	26 50	19 12	
9	19 24 12	19 53	4 56	14 18	19 54	2 53	28 4	18 14	
10	20 23 59	5 5	5 1	14 26	19 4	3 40	29 18	17 15	
11	21 23 44	20 19	4 45	14 33	19 53	4 28	0 X 33	16 17	
12	22 23 27	5 24	4 10	14 40	19 52	5 15	1 47	15 22	
13	23 23 8	20 11	3 18	14 47	19 52	6 2	3 1	14 30	
14	24 22 48	4 m 32	2 14	14 54	19 51	6 49	4 15	13 42	
D	25 22 26	18 25	1 5	15 2	19 50	7 36	5 30	12 59	
16	26 22 2	1 f 48	0 n 6	15 9	19 D 50	8 24	6 44	12 21	
17	27 21 36	14 44	1 14	15 17	19 50	9 11	7 59	11 49	
18	28 21 8	27 17	2 17	15 24	19 51	9 58	9 13	11 23	
19	29 20 39	9 f 33	3 12	15 32	19 52	10 45	10 27	11 2	
20	30 20 8	21 36	3 57	15 30	19 53	11 32	11 41	10 48	
21	1 19 35	3 30	4 31	15 46	19 54	12 19	12 56	10 4	
D	2 19 1	15 21	4 54	15 53	19 55	13 6	14 10	10 D 38	
23	3 18 25	27 11	5 4	16 0	19 57	13 5	15 24	10 42	
24	4 17 47	9 X 5	5 1	16 7	19 58	14 4	16 3	10 51	
25	5 17 7	21 3	4 4	16 14	20 0	15 27	17 52	11 5	
26	6 16 25	3 V	4 15	16 22	20 2	16 14	19 6	11 23	
27	7 15 41	15 20	3 34	16 29	20 4	17 1	20 11	11 47	
28	8 14 55	27 40	2 42	16 36	20 7	17 46	21 3	12 17	
D	9 14 7	10 8	1 42	16 43	20 9	18 35	22 46	12 51	
30	10 13 16	22 51	0 35	16 50	20 12	19 22	24 3	13 28	
31	11 12 23	5 II	0 s 34	16 57	20 14	20 10	25 17	14 9	
Days	u's sets	δ's rises	♀'s rises	♂'s sets	h's declin.	u's declin.	δ's declin.	♀'s declin.	♂'s declin.
1	4 m 45	6 m 11	5 m 55	6 a 49	8 s 12	22 n 27	13 42	16 s 11	0 n 39
7	4 22	6 0	5 45	6 5	7 56	22 29	12 5	13 58	0 s 34
13	4 0	5 46	5 45	rises	7 40	23 30	10 20	11 31	3 26
19	3 38	5 33	5 35	5 m 12	7 22	23 30	8 34	8 53	6 5
25	3 16	5 19	5 26	5 2	7 7	22 29	6 45	6 7	7 25

The LUNATIONS.

First quarter the 3d day, at 30 minutes past 8 morning.
 Full Moon the 9th day, at 24 minutes past 11 night.
 Last quarter the 17th day, at 50 minutes past 7 morning.
 New Moon the 25th day, at 57 minutes past 9 morning.

M	Sundays & other D remark days	☉ rises	☉ sets	☉'s declin.	☾'s declin.	☾ rises & sets	☾ South	Clock bef. ☉	
1		5 32	6 28	4 n 49	21 n 17	morn	4 a 38	3 47	
2		5 30	6 30	5 12	20 39	0 51	5 34	3 29	
3	Rich. Cam. T.e.	5 28	6 32	5 35	18 47	1 3	6 30	3 10	
4	St Ambrose	Ox. T.e	6 34	5 58	15 46	2 16	7 26	2 53	
5	Palm Sunday	O.L.D.	6 36	6 21	11 45	2 50	8 21	2 35	
6		5 22	6 38	6 44	6 58	3 19	9 15	2 17	
7		5 20	6 40	7 6	1 44	3 45	10 8	2 0	
8		5 18	6 42	7 28	3 s 37	4 10	11 2	1 43	
9	Maundy Th.	5 17	6 43	7 51	8 45	(rises	11 57	1 26	
10	Good Friday	5 15	6 45	8 13	13 18	7 a 58	morn	1 9	
11		5 13	6 47	8 35	16 59	9 16	0 52	0 52	
12	Easter Day	5 11	6 49	8 57	19 34	10 26	1 47	0 36	
13	Easter Monday	5 9	6 51	9 18	20 57	11 28	2 43	0 21	
14	Easter Tuesday	5 7	6 53	9 40	21 10	morn	3 38	0 af. 5	
15		5 5	6 55	10 1	20 16	0 19	4 31	0 10	
16		5 3	6 57	10 22	18 24	1 0	5 21	0 25	
17		5 1	6 59	10 43	15 46	1 33	6 9	0 39	
18		4 59	7 1	11 4	12 30	2 0	6 55	0 53	
19	Low Sunday	Alphe	7 3	11 25	8 46	2 24	7 39	1 6	
20		4 56	7 4	11 46	4 42	2 46	8 21	1 19	
21		4 54	7 6	12 6	0 2	3 5	9 3	1 32	
22	Ox. & Ca. T. beg.	4 52	7 8	12 26	3 n 54	3 24	9 45	1 44	
23	St. George	4 50	7 10	12 46	8 8	3 45	10 28	1 56	
24		4 48	7 12	13 6	12 6	4 6	11 13	2 7	
25	St. Mark. Pra. Ma. b.		7 14	13 25	15 36	(sets	0 a 1	2 17	
26	2 S. aft. Easter	4 45	7 15	13 44	18 25	8 a 50	0 52	2 28	
27		4 43	7 17	14 4	20 20	9 56	1 45	2 37	
28		4 41	7 19	14 22	21 9	10 53	2 40	2 47	
29	Easter T. beg.	4 39	7 21	14 41	20 47	11 43	3 36	2 55	
30		4 37	7 23	14 59	19 11	morn	4 32	3 3	
Days	Day increaf.	Length of day	Helioc. long. ♀	Helioc. long. ♀	Helioc. long. ♂	Helioc. long. ☉	Helioc. long. ♀	Helioc. long. ♂	h rises
1	5 12	12 56	14 X 32	1 Ω 6	5 X 42	12 = 11	4 X 40	5 † 35	4 m 58
7	5 36	13 20	14 44	1 35	9 30	18 5	14 10 22	4 4	4 38
13	6 58	13 42	14 56	2 4	13 18	23 57	23 42	8 59	4 17
19	6 22	14 6	15 8	2 37	17 6	29 49	3 V 14 27	5 3	3 52
25	6 44	14 28	15 19	3 2	20 52	5 m 39	12 47	17 ~ 21	3 35

1789.

April.

15

Days	Day lig. begins	Day lig. ends	Durat. twilig.	Pl. D's node	h's latitude	u's latitude	δ's latitude	♀'s latitude	♂'s latitude
1	3 33	8 28	2 0	1 ♀ 10	1 s 49	0 n 31	1 s 4	1 s 29	1 s 21
7	3 18	8 43	2 3	0 51	1 50	0 31	1 3	1 29	2 8
13	3 2	8 59	2 6	0 32	1 51	0 31	1 2	1 27	2 35
19	2 45	9 16	2 13	0 13	1 52	0 32	1 0	1 23	2 41
25	2 26	9 35	2 21	29 m 54	1 53	0 32	0 58	1 17	2 48
Days	☉'s longitude	☽'s long.	☽'s latitude	h's long.	u's long.	δ's long.	♀'s long.	♂'s long.	
1	12 11 27	18 11 53	1 s 41	17 4 20	17 20 56	26 31	14 54		
2	13 10 29	20 18	2 48	17 11 20	20 21 43	27 45	15 41		
3	14 9 29	16 2	3 45	17 18 20	24 22 30	28 59	16 33		
4	15 8 27	0 5	4 30	17 24 20	27 23 16	0 13	17 29		
5	16 7 22	14 27	4 59	17 31 20	31 24 3	1 27	18 28		
6	17 6 15	29 4	5 9	17 38 20	35 24 50	2 41	19 28		
7	18 5 6	13 m 53	4 59	17 44 20	39 25 36	3 55	20 30		
8	19 3 55	28 46	4 29	17 51 20	44 26 23	5 9	21 35		
9	20 2 41	13 33	3 41	17 58 20	48 27 10	6 23	22 43		
10	21 1 25	28 8	2 39	18 4 20	53 27 56	7 37	23 54		
11	22 0 7	12 m 23	1 29	18 11 20	57 28 43	8 51	25 7		
12	22 58 47	26 15	0 14	18 18 21	2 29 30	10 5	26 22		
13	23 57 25	9 41	0 n 59	18 24 21	7 0 16	11 19	27 40		
14	24 56 2	22 42	2 6	18 31 21	12 1 3	12 33	29 0		
15	25 54 38	5 21	3 6	18 37 21	18 1 49	13 47	0 21		
16	26 53 12	17 41	3 55	18 43 21	23 2 35	15 1	1 44		
17	27 51 44	29 47	4 33	18 50 21	29 3 22	16 15	3 9		
18	28 50 14	11 44	4 59	18 56 21	35 4 8	17 29	4 36		
19	29 48 43	23 37	5 11	19 2 21	41 4 54	18 43	6 5		
20	30 47 11	5 29	5 11	19 8 21	47 5 40	19 57	7 36		
21	1 45 37	17 25	4 56	19 14 21	53 6 26	21 11	9 9		
22	2 44 1	29 27	4 29	19 20 22	0 7 13	22 25	10 43		
23	3 42 24	11 40	3 49	19 26 22	6 7 59	23 39	12 10		
24	4 40 45	24 3	2 58	19 32 22	13 8 45	24 53	13 57		
25	5 39 4	6 39	1 57	19 38 22	20 9 31	26 7	15 37		
26	6 37 21	19 27	0 50	19 44 22	27 10 17	27 21	17 19		
27	7 35 36	2 11 29	0 s 22	19 50 22	34 11 3	28 35	19 2		
28	8 33 50	15 44	1 33	19 55 22	42 11 49	29 49	20 47		
29	9 32 1	29 11	2 41	20 1 22	49 12 35	1 8	22 34		
30	10 30 11	12 51	3 41	20 7 22	57 13 21	2 17	24 23		
Days	u's rises	δ's rises	♀'s rises	♂'s rises	h's declin.	u's declin.	δ's declin.	♀'s declin.	♂'s declin.
1	2 m 52	5 m 3	5 m 16	4 m 54	6 s 47	22 n 27	4 s 35	2 s 45	7 s 12
7	2 31	4 48	5 6	4 47	6 32	22 23	2 43	0 n 12	5 44
13	2 11	4 34	4 57	4 41	6 18	22 19	0 51	3 9	3 18
19	1 50	4 19	4 47	4 34	6 4	22 14	1 n 1	6 4	0 n 3
25	1 31	4 5	4 37	4 27	5 50	22 8	2 53	8 54	3 13

The LUNATIONS.

First quarter the 2d day, at 2 minutes past 3 afternoon.

Full Moon the 9th day, at 22 minutes past 9 morning.

Last quarter the 17th day, at 44 minutes past 1 morning.

New Moon the 24th day, at 20 minutes past 10 night.

First quarter the 31st day, at 44 minutes past 7 night.

M	Sundays & other	☉	☉	☉'s	D's	D rises	D	Clock
D	remark. days	rises	sets	declin.	declin.	& sets	South	aft. ☉
1	St. Phil. and Ja.	4 36	7 24	15 n 17	16 n 26	om 23	5 a 23	3 11
2		4 34	7 26	15 35	12 43	0 57	6 21	3 18
3	S. af. Easter	In. of C.	7 28	15 53	8 15	1 27	7 13	3 25
4		4 31	7 29	16 10	3 17	1 53	8 5	3 31
5		4 29	7 31	16 27	1 s 54	2 17	8 57	3 36
6	St. John A.P.L.	4 27	7 33	16 44	6 54	2 42	9 49	3 41
7		4 25	7 35	17 1	11 39	3 7	10 43	3 46
8		4 24	7 36	17 17	15 37	3 37	11 38	3 49
9		4 22	7 38	17 33	18 38	(rises	morn	3 53
10	S. af. Easter	4 21	7 39	17 48	20 30	9 a 17	0 33	3 55
11		4 19	7 41	18 4	21 10	10 12	1 28	3 58
12	Old May Day	4 18	7 42	18 19	20 39	10 56	2 22	3 59
13		4 16	7 44	18 33	19 7	11 35	3 14	4 0
14		4 14	7 46	18 48	16 41	morn	4 4	4 1
15		4 13	7 47	19 2	13 35	0 5	4 51	4 0
16		4 12	7 48	19 16	9 58	0 29	5 36	4 0
17	Rogation Sun.	4 10	7 50	19 29	5 59	0 51	6 19	3 58
18		4 9	7 51	19 42	1 47	1 10	7 0	3 56
19	Q. Charlott. b.	Dunf.	7 53	19 55	2 n 31	1 30	7 42	3 54
20		4 6	7 54	20 8	6 46	1 50	8 25	3 50
21	Asc H. Thurf.	4 5	7 55	20 20	10 50	2 11	9 9	3 47
22	Prs. Eliz. b.	4 3	7 57	20 32	14 30	2 36	9 56	3 42
23		4 2	7 58	20 43	17 35	3 4	10 45	3 38
24	S. after Ascen.	4 1	7 59	20 54	19 49	(sets	11 37	3 32
25	Easter T. en's.	4 0	8	21 5	21 1	8 a 52	0 a 32	3 27
26	Augustin Abp.	3 58	8 2	21 15	21 0	9 39	1 29	3 20
27	Vene. Bene	3 57	8 3	21 25	19 42	10 23	2 26	3 15
28	Oxf. Term ends	3 56	8 4	21 35	17 11	10 59	3 22	3 6
29	K. Ch. 2. restor.	3 55	8 5	21 44	13 38	11 30	4 17	2 50
30		3 54	8 6	21 53	9 18	11 57	5 10	2 50
31	Whit Sunday	3 53	8 7	22 1	4 26	morn	6 1	2 42
Days	Day	Length	Helioc.	Helioc.	Helioc.	Helioc.	Helioc.	Helioc.
	increaf.	of day	long. ♀	long. ♀	long. ♂	long. ⊖	long. ♀	ong. ♀
1	7 4 14 48	15 X 31	38 31	24 X 18	11 n 28	22 V 21	10 X 54	3 m 13
7	7 26 15 10	15 43	4 0	28 23 17	16	18 56	9 V 4	2 51
13	7 44 15 28	15 55	4 20	2 V 7 23	3 1	32	12 8 30	2 28
19	8 9 15 46	16 7	4 58	5 50	28 50	21 10	19 II 48	2 5
25	8 16 16 0	16 18	5 26	9 31	4 36	0 II 48	26 25 36	1 42

1789.

May.

17

Days	Day lig. begins	Day lig. ends	Durat. twilig.	Pl. D's node	h's latitude	u's latitude	δ's latitude	♀'s latitude	♂'s latitude
1	2 4 9 58	2 34	29m35	1 s 54	0 n 32	0 s 56	1 s 8	1 s 55	
7	1 46 10 16	2 41	29 16	1 55	0 32	0 54	0 58	1 6	
13	1 19 10 44	3 0	28 57	1 56	0 32	0 51	0 47	0 6	
19	0 43 11 22	4 29	28 38	1 53	0 32	0 48	0 34	0 n 56	
25	No real night.			28 18	1 50	0 32	0 45	0 20	1 43
M	☉'s longitude		D's long.	D's latitude	h's long.	u's long.	δ's long.	♀'s long.	♂'s long.
1	8 11 28 19	26 50 43	4 s 28	20 12	23 50 5	14 7	3 8 30	26 13	
2	12 26 25	10 54 46	5 1	20 18	23 13	14 53	4 44	28 5	
D	13 24 29	24 59	5 15	20 23	23 21	15 39	5 58	29 59	
4	14 22 30	9 12 20	5 10	20 28	23 29	16 24	7 11	1 8 56	
5	15 20 29	23 45	4 46	20 34	23 37	17 10	8 25	3 54	
6	16 18 27	8 10	4 4	20 39	23 46	17 56	9 39	5 54	
7	17 16 23	22 30	3 6	20 44	23 54	18 41	10 53	7 55	
8	18 14 17	6 41	1 58	20 49	24 3	19 27	12 7	9 58	
9	19 12 10	20 36	0 4	20 54	24 11	20 12	13 21	12 2	
D	20 10 1	11 15	0 n 32	20 59	24 20	20 58	14 34	14 8	
11	21 7 51	17 33	1 44	21 4	24 29	21 43	15 48	16 15	
12	22 5 39	0 31	2 48	21 9	24 38	22 29	17 2	18 23	
13	23 3 26	13 11	3 43	21 13	24 47	23 14	18 16	20 33	
14	24 1 12	25 33	4 26	21 18	24 56	24 0	19 30	22 44	
15	24 58 57	7 42	4 56	21 23	25 5	24 45	20 44	24 55	
16	25 56 41	19 41	5 13	21 27	25 15	25 30	21 57	27 6	
D	26 54 24	1 35	5 17	21 32	25 24	26 15	23 11	29 18	
18	27 52 6	13 29	5 6	21 36	25 34	27 0	24 24	1 29	
19	28 49 47	25 26	4 43	21 40	25 44	27 45	25 38	3 40	
20	29 47 27	7 32	4 7	21 44	25 54	28 30	26 52	5 50	
21	Π 0 45 6	19 50	3 19	21 48	26 4	29 15	28 6	7 59	
22	1 42 44	2 22	2 20	21 52	26 14	0 8 0	29 20	10 7	
23	2 40 22	15 11	1 13	21 56	26 24	0 45	0 Π 33	12 13	
D	3 37 59	28 18	0 122	0 26	35	1 30	1 47	14 18	
25	4 35 34	11 Π 43	1 s 12	22 4	26 45	2 14	3 1	16 21	
26	5 33 7	25 23	2 23	22 8	26 55	2 59	4 15	18 22	
27	6 30 39	9 17	3 27	22 11	27 6	3 43	5 29	20 21	
28	7 28 10	23 21	4 19	22 15	27 16	4 28	6 42	22 17	
29	8 25 40	7 33	4 56	22 18	27 2	5 12	7 56	24 11	
30	9 23 9	21 48	5 14	22 22	27 37	5 57	9 10	26 3	
D	10 20 36	6 12 4	5 14	22 25	27 48	6 41	10 23	27 51	
Days	u's sets	δ's rises	♀'s rises	♂'s rises	h's declin.	u's declin.	δ's declin.	♀'s declin.	♂'s declin.
1	1 m 10	3 m 49	4 m 27	4 m 21	5 s 38	22 n c	4 n 43	11 n 37	8 n 20
7	0 50	3 33	4 18	4 16	5 27	21 5	6 30	14 11	13 7
13	0 29	3 18	4 10	sets	5 16	21 4	8 15	16 32	17 49
19	0 8	3 2	4 3	8 a 25	5 7	21 32	9 56	18 38	11 49
25	1 a 47	2 47	3 59	9 13	4 50	21 21	11 55	20 27	14 28

B

The LUNATIONS.

Full Moon the 7th day, at 17 minutes past 8 night.

Last quarter the 15th day, at 5 minutes past 7 night.

New Moon the 23rd day, at 5 minutes past 8 morning.

First quarter the 29th day, at 16 minutes past 12 night.

M D	Sundays & other remark. days.	☉ rises	☉ sets	☉'s declin.	☽'s declin.	☽ rises & sets	☽ South	Clock aft. ☉	
1	Whit-Monday	Nicom.	8 8	22 n 10	08 39	cm 21	6 a 52	2 33	
2	Whit-Tuesday		3 51 8 9	22 17	5 41	0 46	7 43	2 24	
3	Ember week		3 51 8 9	22 25	10 23	1 10	8 34	2 14	
4	K. Geo. III. born		3 50 8 10	22 32	14 29	1 36	9 26	2 4	
5	Pr. Ex. Aug. b.	Bonita.	8 11	22 38	17 45	2 7	10 20	1 5	
6			3 48 8 12	22 44	19 59	2 43	11 14	1 43	
7	D Trinity Sunday		3 48 8 12	22 50	21 4	☽ rises	morn	1 33	
8			3 47 8 13	22 55	20 59	8 a 47	0 8	1 22	
9			3 46 8 14	23 0	19 48	9 29	1 1	1 10	
10	Oxf. Term beg.		3 46 8 14	23 5	17 40	10 2	1 52	0 58	
11	St. Barnabas	Cor. Ch	8 15	23 9	14 46	10 29	2 41	0 47	
12	Trin. Ter. beg.		3 45 8 15	23 13	11 17	10 52	3 27	0 34	
13			3 44 8 16	23 16	7 23	11 12	4 10	0 22	
14	D 3 S. aft. Trin		3 44 8 16	23 19	3 14	11 31	4 52	0 10	
15			3 44 8 16	23 21	1 n 1	11 50	5 33	obef. 3	
16			3 43 8 17	23 24	5 16	morn	6 15	0 16	
17	St. Alban		3 43 8 17	23 25	9 23	0 10	6 58	0 29	
18			3 43 8 17	23 27	13 11	0 33	7 43	0 42	
19			3 43 8 17	23 27	16 29	0 59	8 30	0 55	
20	Trans. Ed. KWS		3 43 8 17	23 28	19 4	1 30	9 21	1 8	
21	D 3 S. aft. Trin	Lon. d.	8 17	23 28	20 42	2 9	10 15	1 21	
22			3 43 8 17	23 27	21 9	2 58	11 11	1 34	
23			3 43 8 17	23 27	20 19	☽ sets	0 a 9	1 47	
24	Nativ J Bapt.		3 43 8 17	23 25	18 10	8 a 51	1 7	2 0	
25			3 43 8 17	23 24	14 51	9 28	2 4	2 13	
26			3 44 8 16	23 22	10 30	9 56	2 59	2 25	
27			3 44 8 16	23 19	5 45	10 21	3 52	2 38	
28	D 3 S. aft. Trin		3 44 8 16	23 17	0 37	10 45	4 43	2 50	
29	St. Peter		3 45 8 15	23 13	4 s 29	11 9	5 34	3 2	
30			3 45 8 15	23 10	9 17	11 34	6 25	3 14	
Days	Day increas.	Length of day	Helioc. long. h	Helioc. long. 11	Helioc. long. ♂	Helioc. long. ⊖	Helioc. long. ♀	Helioc. long. ☿	h rises
1	8 32	16 16	16 32	6 0	13 48	14 18	12 11	3 39	1 m 14
7	8 40	16 24	16 44	6 29	17 26	17 2	21 45	29 30	0 50
13	8 48	16 32	16 56	6 58	21 22	22 46	1 27	21 10	0 26
19	8 50	16 34	17 7	7 26	24 36	28 30	11 10	10 11	4 0 2
25	8 50	16 34	17 19	7 55	28 9	4 13	20 54	27 21	11 37

1789.

June.

19

Day	Day lig. begins	Day lig. ends	Durat. twilig.	Pl. D's node	h's latitude	u's latitude	δ's latitude	♀'s latitude	♂'s latitude
1				27 11 56	2 s 1	0 n 32	0 s 41	0 s 4	2 n 7
7				27 37	2 2	0 32	0 38	0 n 10	1 58
13	No	real	night	27 18	2 4	0 33	0 34	0 24	1 23
19				26 59	2 6	0 33	0 30	0 38	0 24
25				26 40	2 7	0 33	0 26	0 50	0 s 55
M	O's longitude		D's long.	D's latitude	h's long.	u's long.	δ's long.	♀'s long.	♂'s long.
1	11 11	18	2	20 12 17	4 s 54	22 28	27 59	7 25	11 11 37
2	12 15	27	4	26	4 16	22 31	28 10	8 9	12 51
3	13 12	51	18	28	3 24	22 34	28 21	8 54	14 4 3
4	14 10	13	2	21	2 20	22 37	28 32	9 38	15 18 4
5	15 7	34	16	3	1 8	22 40	28 43	10 22	16 32 6
6	16 4	54	29	34	0 n 6	22 42	28 54	11 6	17 45 7
7	17 2	14	12	51	1 18	22 45	29 6	11 50	18 59 9
8	18 0	33	25	53	2 25	22 47	29 17	12 34	20 13 10
9	18 56	51	8	40	3 23	22 50	29 29	13 18	21 27 12
10	19 54	8	21	13	4 11	22 52	29 41	14 12	22 41 13
11	20 51	25	3	32	4 45	22 55	29 52	14 45	23 54 14
12	21 48	42	15	39	5 6	22 57	30 4	15 29	25 8 16
13	22 45	58	27	39	5 14	22 59	0 16	16 12	26 22 17
14	23 43	14	9	33	5 8	23 1	0 27	16 56	27 36 18
15	24 40	30	21	26	4 49	23 3	0 39	17 39	28 50 19
16	25 37	46	3	23	4 17	23 4	0 51	18 23	30 3 20
17	26 35	2	15	29	3 33	23 6	1 3	19 6	1 17 21
18	27 32	18	27	48	2 39	23 7	1 15	19 50	2 31 22
19	28 29	33	10	25	1 16	23 9	1 27	20 33	3 44 23
20	29 26	48	23	22	0 27	23 10	1 39	21 16	4 58 24
21	30 24	3	6	14	0 s 46	23 11	1 51	21 59	6 12 24
22	1 21	18	20	24	1 58	23 13	2 3	22 42	7 26 25
23	2 18	33	4	28	3 4	23 14	2 15	23 25	8 39 26
24	3 15	47	18	49	4 1	23 15	2 27	24 8	9 53 26
25	4 13	1	3	21	4 42	23 16	2 40	24 51	11 7 27
26	5 10	15	17	59	5 6	23 17	2 52	25 34	12 21 27
27	6 7	29	2	34	5 9	23 17	3 5	26 17	13 35 28
28	7 4	42	17	2	4 53	23 18	3 18	26 59	14 48 28
29	8 1	55	1	19	4 19	23 18	3 30	27 42	16 2 28
30	8 59	7	15	21	3 30	23 19	3 43	28 24	17 15 28
Days	u's fe's	δ's rises	♀ sets	♂ sets	h's declin.	u's declin.	δ's declin.	♀'s declin.	♂'s declin.
1	11 a 22	2 m 28	8 a 9	9 a 52	4 s 51	21 n 7	13 n 21	22 n 8	25 n 35
7	11 0	2 13	8 23	10 7	4 45	20 53	14 48	23 11	25 7
13	10 39	1 56	8 36	10 6	4 41	20 38	16 10	23 49	23 43
19	10 18	1 41	8 44	9 53	4 39	20 23	17 26	24 2	21 50
25	9 56	1 27	8 50	9 31	4 37	20 7	18 35	23 50	19 49

The LUNATIONS.

Full Moon the 7th day, at 31 minutes past 8 morning.

Last quarter the 15th day, at 21 minutes past 11 morning.

New Moon the 22d day, at 1 minute past 4 afternoon.

First quarter the 29th day, at 20 minutes past 6 morning.

M	Sundays & other remark. days	☉ rises	☉ sets	☉'s declin.	☉'s declin.	☉ rises & sets	☉ South	Clock bef. ☉	
1	Trin. 1er. ends	3 46	8 14	23 n 6	13 s 31	morn	7 a 18	3 26	
2	Vifit. of B. V. M.	3 46	8 14	23 1	16 58	o 6	8 9	3 37	
3	Dog. ays begin	3 47	8 13	22 56	19 27	o 37	9 2	3 48	
4	Transf. St. Mart.	3 47	8 13	22 51	20 50	1 18	9 56	3 58	
D 4	Saft. Trin.	O. M. d.	8 12	22 45	21 7	2 10	10 49	4 9	
6		3 49	8 11	22 39	20 17	3 2	11 40	4 19	
7	Thos. a Becket	3 49	8 11	22 33	18 28	☉ rises	morn	4 28	
8	(Camb. Com.	3 50	8 10	22 26	15 49	8 a 25	o 29	4 37	
9		3 51	8 9	22 19	12 31	8 50	1 16	4 46	
10	Camb. Ter. ends	3 52	8 8	22 11	8 45	9 12	2 o	4 55	
11		3 53	8 7	22 3	4 41	9 32	2 43	5 3	
D 5	S. aft. Trin.	3 54	8 6	21 55	o 28	9 50	3 25	5 10	
13	Oxford Aft	3 55	8 5	21 46	3 n 47	10 11	4 6	5 17	
14		3 56	8 4	21 37	7 54	10 31	4 48	5 24	
15	Swithun	3 57	8 3	21 27	11 46	10 55	5 31	5 30	
16		3 58	8 2	21 17	15 13	11 24	6 16	5 36	
17		3 59	8 1	21 7	18 4	11 58	7 4	5 41	
18	Oxf. T. ends	4 o	8 o	20 57	20 4	morn	7 56	5 46	
D 6	S. aft. Trin.	4 2	7 58	20 46	21 2	o 42	8 51	5 50	
20	Margaret	4 3	7 57	20 34	20 46	1 36	9 48	5 54	
21		4 4	7 56	20 23	19 11	2 42	10 47	5 57	
22	Magdalen	4 5	7 55	20 11	16 19	☉ sets	11 46	6 o	
23		4 7	7 53	19 58	12 20	7 a 54	o a 44	6 2	
24		4 8	7 52	19 46	7 35	8 22	1 39	6 3	
25	St. James	4 10	7 50	19 33	2 22	8 48	2 33	6 4	
D 7	S. aft. Trin.	St. An	7 49	19 19	2 s 54	9 11	3 26	6 4	
27		4 12	7 48	19 6	7 55	9 37	4 18	6 4	
28		4 14	7 46	18 52	12 23	10 6	5 11	6 3	
29		4 15	7 45	18 38	16 4	10 38	6 4	6 1	
30		4 17	7 43	18 23	18 48	11 17	6 57	5 59	
31		4 18	7 42	18 8	20 28	morn	7 50	5 56	
Days	Day decreaf	Length of day	Helioc. long. ♀	Helioc. long. ♀	Helioc. long. ♂	Helioc. long. ☉	Helioc. long. ♀	Helioc. long. ♂	h rises
1	o 6	16 28	17 31	8 24	1 8 39	9 56	o 38	13 55	11 a 13
7	o 12	16 22	17 43	8 52	5 8 15	39	10 23	o 31	10 48
13	o 24	16 10	17 55	9 21	8 35	21 22	20 9	17 56	10 23
19	o 38	15 56	18 6	9 50	11 59	27 6	29 55	7 33	10 o
25	o 54	15 40	18 18	10 18	15 22	2 50	9 40	28 47	9 25

1789.

July.

21

Days	Day lig. begins	Day lig. ends	Durat. twilig.	Pl. D's node	h's latitude	u's latitude	♂'s latitude	♀'s latitude	♂'s latitude
1	No	real	night	26m21	2 s 9	0 n 33	0 s 22	1 n 1	2 s 26
7				26 2	2 10	0 34	0 18	1 11	3 53
13				25 43	2 12	0 34	0 13	1 19	4 48
19				25 24	2 13	0 34	0 9	1 25	4 48
25	0 45	11 7	3 17	25 5	2 15	0 35	0 4	1 28	3 53
M	☉'s longitude		D's long.	D's latitude	h's long.	u's long.	♂'s long.	♀'s long.	♂'s long.
1	9 56	18	29 9	2 s 29	23 19	3 56	29 8	6 18	29 28
2	10 53	30	12m48	1 21	23 19	4 8	29 49	19 43	28 46
3	11 50	41	26 3	0 10	23 19	4 21	0 11	31 20	57 28
4	12 47	52	9 10	1 n 1	23 19	4 34	1 13	22 10	28 30
D	13 45	3	22 4	2 7	23 19	4 46	1 56	23 24	28 15
6	14 42	14	4 47	3 6	23 19	4 59	2 38	24 37	27 55
7	15 39	25	17 19	3 54	23 19	5 12	3 20	25 51	27 30
8	16 36	36	29 41	4 31	23 19	5 25	4 2	27 5	27 2
9	17 33	48	11 52	4 55	23 18	5 38	4 44	28 19	26 31
10	18 30	59	23 55	5 6	23 18	5 51	5 25	29 32	25 58
11	19 28	11	5 52	5 2	23 17	6 4	6 7	0 46	25 22
D	20 25	24	17 44	4 46	23 16	6 17	6 49	1 59	24 44
13	21 22	38	29 36	4 18	23 15	6 30	7 30	3 13	24 3
14	22 19	52	11 31	3 38	23 15	6 43	8 12	4 27	23 22
15	23 17	7	23 35	2 48	23 14	6 56	8 53	5 41	22 42
16	24 14	23	5 52	1 50	23 13	7 9	9 35	6 55	22 2
17	25 11	40	18 27	0 45	23 12	7 22	10 16	8 8	21 24
18	26 8	57	1 25	0 s 25	23 10	7 35	10 57	9 22	20 45
D	27 6	16	14 40	1 35	23 8	7 48	11 38	10 36	20 15
20	28 3	35	28 40	2 41	23 7	8 1	12 19	11 50	19 45
21	29 0	54	12 58	3 40	23 5	8 14	13 0	13 4	19 20
22	29 58	15	27 39	4 26	23 3	8 27	13 41	14 17	18 59
23	0 55	37	12 34	4 54	23 1	8 40	14 22	15 31	18 43
24	1 52	59	27 36	5 3	22 59	8 54	15 3	16 44	18 33
25	2 50	21	12m34	4 51	22 57	9 7	15 44	17 58	18 28
D	3 47	44	27 20	4 19	22 55	9 20	16 25	19 12	18 28
27	4 45	8	11 48	3 32	22 53	9 33	17 6	20 26	18 35
28	5 42	31	25 55	2 32	22 50	9 46	17 46	21 40	18 49
29	6 39	56	9m40	1 25	22 48	10 0	18 27	22 53	19 9
30	7 37	21	23 4	0 15	22 46	10 13	19 7	24 7	19 35
31	8 34	47	6 10	0 n 55	22 43	10 26	19 48	25 21	20 7
Days	u's sets	♂'s rises	♀'s sets	♂'s sets	h's declin.	u's declin.	♂'s declin.	♀'s declin.	♂'s decl n.
1	9 a 34	1 m 13	8 a 52	9 a 0	4 s 38	19 n 50	19 n 37	23 n 12	18 n 2
7	9 13	0 59	8 52	8 21	4 39	19 32	20 33	22 10	16 53
13	8 52	0 47	8 50	rises	4 42	19 13	21 22	20 45	16 36
19	8 31	0 36	8 44	3 m 47	4 46	18 54	22 4	18 53	17 11
25	8 10	0 25	8 37	3 11	4 52	18 34	22 38	16 52	18 21

The LUNATIONS.

Full Moon the 5th day, at 27 minutes past 10 night.

Last quarter the 14th day, at 5 minutes past 2 morning.

New Moon the 20th day, at 18 minutes past 11 night.

First quarter the 27th day, at 14 minutes past 3 afternoon.

M	Sundays & other D remark. days	☉ rises	☉ sets	☉'s declin.	☾'s declin.	☾ rises & sets	☾ South	Clock bef. ☉	
1	Lammas day	4 20	7 40	17 n 53	21 s 2	om 2	8 a 43	5 52	
D 2	8 S. aft Trin.	4 22	7 38	17 38	20 30	0 55	9 34	5 48	
3		4 23	7 37	17 22	18 58	1 53	10 23	5 43	
4		4 25	7 35	17 6	16 30	2 55	11 10	5 38	
5		4 26	7 34	16 50	13 31	(☾ rise)	11 56	5 32	
6	Transfiguration	4 28	7 32	16 33	9 55	7 a 17	morn	5 25	
7	Prs. Amel. b.	N. of Jesus	30	16 16	5 57	7 38	0 40	5 18	
8		4 31	7 29	15 59	1 48	7 58	1 22	5 10	
D 9	9 S. aft. Trin.	4 33	7 27	15 42	2 n 25	8 17	2 4	5 2	
10	St Laurence	4 35	7 25	15 24	6 33	8 38	2 46	4 53	
11	Prs. Brunf. b.	Dogd. e.	7 23	15 6	10 27	9 0	3 29	4 44	
12	Pr. Wales b.	O. Lam	7 22	14 48	13 59	9 28	4 13	4 34	
13		4 40	7 20	14 30	16 58	9 59	5 0	4 24	
14		4 42	7 18	14 11	19 14	10 40	5 49	4 13	
15	Assumption	4 44	7 16	13 53	20 35	11 26	6 41	4 1	
D 16	10 S. aft. Trin.	4 45	7 15	13 33	20 51	morn	7 36	3 49	
17	(D. of Yor. b.	4 47	7 13	13 14	19 52	0 23	8 32	3 37	
18		4 49	7 11	12 55	17 37	1 32	9 30	3 24	
19		4 51	7 9	12 35	14 13	2 50	10 28	3 10	
20		4 53	7 7	12 15	9 45	☾ sets	11 25	2 56	
21	Pr. W. Hen. b.	4 54	7 6	11 55	4 40	6 a 50	0 a 22	2 42	
22		4 56	7 4	11 35	0 s 43	7 18	1 18	2 27	
D 23	11 S. aft. Trin.	4 58	7 2	11 15	5 59	7 44	2 13	2 12	
24	St. Bartholom.	5 0	7 0	10 54	10 47	8 12	3 7	1 56	
25		5 2	6 58	10 33	14 50	8 43	4 1	1 40	
26		5 4	6 56	10 12	17 55	9 22	4 56	1 23	
27		5 6	6 54	9 51	19 54	10 7	5 51	1 6	
28	St. Augustin	5 8	6 52	9 30	20 45	10 57	6 44	0 49	
29	Behead. J. Bap.	5 9	6 51	9 9	20 31	11 53	7 36	0 31	
D 30	12 S. aft. Trin.	5 11	6 49	8 47	19 15	morn	8 26	0 13	
31		5 13	6 47	8 25	17 7	0 54	9 14	o aft. 5	
Days	Day decreas.	Length of day	Helioc. long. ♀	Helioc. long. ♂	Helioc. long. ♂	Helioc. long. ☉	Helioc. long. ♀	Helioc. long. ♀	☾ rises
1	1 14	15 20	18 32	10 52	19 8 16	9 32	21 17 2	29 17	9 a 8
7	1 34	15 0	18 44	11 20	22 34 15	17 0 45	18 1	8 30	8 30
13	1 54	14 40	18 56	11 49	25 50 21	3 10 27	7 11 24	8 21	8 21
19	2 16	14 18	19 8	12 17	29 4 26	49 20 8	14 55	7 58	7 58
25	2 38	13 56	19 19	12 46	2 11 16	2 37 29	47 18 54	7 36	7 36

1789.

August.

23

Days	Day lig. begins	Day lig. ends	Durat. twilig.	Pl. & s node	h's latitude	4's latitude	δ's latitude	♀'s latitude	♂'s latitude
1	1 24	10 34	2 55	24 m 42	2 s 17	0 n 35	0 n 2	1 n 29	2 s 9
7	1 47	10 11	2 42	24 23	2 18	0 36	0 7	1 28	0 35
13	2 9	9 49	2 30	24 4	2 19	0 36	0 17	1 24	0 n 42
19	2 29	9 30	2 21	23 45	2 20	0 37	0 12	1 17	1 30
25	2 47	9 12	2 14	23 26	2 21	0 37	0 23	1 8	1 46
M	☉'s longitude		D's long.	D's latitude	h's long.	4's long.	δ's long.	♀'s long.	♂'s long.
1	Ω 9	32 13	19 7	1 2 n 0	22 40	10 8	20 11	28 16	Ω 35
D	10	29 40	1 38	2 57	22 37	10 52	21 8	27 49	21 31
3	11	27 8	14 4	3 46	22 35	11 5	21 48	29 2	22 22
4	12	24 36	26 2	4 23	22 32	11 18	22 28	om 16	23 20
5	13	22 5	8 32	4 48	22 29	11 32	23 8	1 29	24 24
6	14	19 35	20 34	4 59	22 26	11 45	23 47	2 43	25 53
7	15	17 7	2 32	4 57	22 23	11 58	24 27	3 56	26 47
8	16	14 40	14 25	4 43	22 20	12 11	25 7	5 10	28 7
D	17	12 14	26 16	4 16	22 17	12 24	25 46	6 24	29 33
10	18	9 50	8 7	3 38	22 13	12 38	26 26	7 37	1 Ω 4
11	19	7 27	20 1	2 50	22 10	12 51	27 5	8 51	2 38
12	20	5 5	2 8	1 54	22 6	13 4	27 45	10 4	4 17
13	21	2 45	14 18	0 52	22 2	13 17	28 24	11 18	6 1
14	22	0 27	26 49	0 8	21 59	13 30	29 3	12 32	7 48
15	22	58 11	9 43	1 22	21 55	13 43	29 42	13 45	9 38
U	23	55 56	23 3	2 27	21 51	14 56	om 21	14 59	11 30
17	24	53 43	6 53	3 25	21 48	14 10	1 0	16 13	13 24
18	25	51 31	21 12	4 13	21 44	14 23	1 39	17 26	15 20
19	26	49 21	5 Ω 58	4 46	21 40	14 36	2 18	18 40	17 17
20	27	47 12	21 4	5 0	21 36	14 49	2 56	19 54	19 15
21	28	45 5	6 20	4 53	21 32	15 2	3 35	21 7	21 14
22	29	43 0	21 35	4 25	21 28	15 15	4 13	22 21	23 13
D	30	40 56	6 38	3 39	21 24	15 28	4 52	23 34	25 12
24	1 38	53	21 21	2 39	21 19	15 41	5 30	24 48	27 12
25	2 36	52	5 m 38	1 30	21 15	15 54	6 8	26 1	29 11
26	3 34	52	19 29	0 18	21 11	16 7	6 46	27 15	1 9
27	4 32	53	2 54	on 52	21 7	16 20	7 24	28 28	3 7
28	5 30	55	15 57	1 59	21 2	16 33	8 2	29 42	5 4
29	6 28	59	28 40	2 57	20 58	16 46	8 40	om 55	7 0
D	7 27	4	11 57	3 46	20 53	16 58	9 17	2 9	8 55
31	8 25	11	23 23	4 23	20 49	17 11	9 55	3 22	10 49
Days	4's rises	δ's rises	♀'s sets	♂'s rises	h's declin.	4's declin.	δ's declin.	♀'s declin.	♂'s declin.
1	4 n 23	om 15	8 a 26	2 m 48	5 s 0	18 n 9	23 n 9	14 n 4	19 n 44
7	4 6	0 7	8 17	2 50	5 8	17 48	23 28	11 26	10 15
13	3 50	0 0	8 7	3 14	5 17	17 26	23 39	8 37	19 28
19	3 35	11 a 54	7 56	3 54	5 27	17 4	23 44	5 40	17 6
25	3 20	11 49	7 46	4 39	5 38	16 41	23 41	2 38	13 26

The LUNATIONS.

Full Moon the 4th day, at 7 minutes past 2 afternoon.Last quarter the 12th day, at 54 minutes past 2 afternoon.New Moon the 19th day, at 6 minutes past 7 morning.First quarter the 26th day, at 48 minutes past 3 morning.

M D	Sundays & other remark. days	☉ rises	☉ sets	☉'s declin.	☽'s declin.	☽ rises & sets	☽ South	Clock aft. ☉	
1	Giles	5 15	6 45	8 n 3	14 s 15	1 m 59	10 a 0	0 24	
2	Lond. bur. 1666	5 17	6 43	7 42	10 50	3 5	10 44	0 43	
3		5 19	6 41	7 19	7 0	4 10	11 27	1 2	
4		5 21	6 39	6 57	2 56	☽ rises	morn	1 22	
5		5 23	6 37	6 35	1 n 14	6 a 30	0 10	1 42	
6	12 S. aft. Trin.	5 25	6 35	6 13	5 22	6 52	0 52	2 2	
7	Eunuchus	5 27	6 33	5 50	9 19	7 15	1 34	2 22	
8	Nativ. of V. M.	5 29	6 31	5 27	12 55	7 39	2 18	2 42	
9		5 31	6 29	5 5	16 1	8 9	3 4	3 3	
10		5 32	6 28	4 42	18 26	8 45	3 52	3 23	
11		5 34	6 26	4 19	20 2	9 28	4 42	3 44	
12		5 36	6 24	3 56	20 30	10 21	5 35	4 5	
13	14 S. aft. Trin.	5 38	6 22	3 33	20 8	11 25	6 29	4 26	
14	Holy Cross	5 40	6 20	3 10	18 26	morn	7 25	4 47	
15		5 42	6 18	2 47	15 36	0 36	8 21	5 8	
16	Ember week	5 44	6 16	2 24	11 42	1 52	9 17	5 29	
17	Lambert	5 46	6 14	2 0	7 0	3 15	10 13	5 50	
18		5 48	6 12	1 37	1 47	4 38	11 8	6 10	
19		5 50	6 10	1 14	3 s 34	☽ sets	0 a 4	6 31	
20	15 S. aft. Trin.	5 52	6 8	0 50	8 40	6 a 21	1 1	6 52	
21	St. Matthew	5 54	6 6	0 27	13 8	6 52	1 57	7 13	
22	K. Geo. 3. cro.	5 56	6 4	0 3	16 41	7 28	2 54	7 33	
23		5 58	6 2	0 s 20	19 8	8 10	3 50	7 54	
24		6 0	6 0	0 44	20 22	9 0	4 45	8 14	
25		6 2	5 58	1 7	20 27	9 56	5 39	8 35	
26	St. Cyprian	6 4	5 56	1 30	19 27	10 57	6 31	8 55	
27	16 S. aft. Trin.	6 6	5 54	1 54	17 33	morn	7 21	9 15	
28		6 8	5 52	2 17	14 52	0 1	8 8	9 34	
29	St. Mic. Pres. Ch. A. M. b.	5 50	2 41	11 37	1 7	8 53	9 54	9 54	
30	St. Jerom	6 12	5 48	3 4	7 56	2 12	9 37	10 13	
☾ Sat	Day decreas.	Length of day	Helioc. long. ♀	Helioc. long. ♀	Helioc. long. ♂	Helioc. long. ☉	Helioc. long. ♀	Helioc. long. ♂	h rises
1	3 4	13 30	19 33	13 19	5 57	9 23	11 10	2 11	7 a 10
7	3 28	13 6	19 45	13 48	9 5	15 13	20 36	14 25	6 47
13	3 50	12 44	19 57	14 16	12 11	21 3	0 9	4 11	sets
19	4 14	12 20	20 9	14 45	15 15	26 55	9 41	21 47	5 m 5
25	4 38	11 56	20 21	15 13	18 17	2 41	19 13	8 29	4 41

1789.

September.

25

Days	Day lig. begins	Day lig. ends	Durat. twilig.	Pl. D's node	h's latitude	u's latitude	δ's latitude	♀'s latitude	♂'s latitude
1	3 7	8 52	2 7	23m 4	2 22	0 n 38	0 n 29	0 n 55	1 n 34
7	3 23	8 36	2 3	22 45	2 22	0 39	0 35	0 41	1 6
13	3 38	8 21	1 59	22 26	2 23	0 40	0 41	0 26	0 28
19	3 52	8 7	1 57	22 7	2 23	0 41	0 47	0 9	0 s 15
25	4 5	7 54	1 57	21 48	2 23	0 41	0 53	0 8	1 0
M D	☉'s longitude	D's long.	D's latitude	h's long.	u's long.	δ's long.	♀'s long.	♂'s long.	
1	17 9	23 19	5m 30	4 n 48	20 44	17 23	10 26	32 42	12m 42
2	10 21	28	17 31	5 0	20 40	17 36	11 10	5 49	14 34
3	11 19	39	29 27	4 59	20 35	17 49	11 47	7 2	16 25
4	12 17	51	11 20	4 44	20 31	18 12	12 24	8 15	18 14
5	13 16	5	23 12	4 18	20 26	18 14	13 2	9 29	20 2
D	14 14	21	5 3	3 40	20 22	18 27	13 39	10 42	21 49
7	15 12	39	16 57	2 52	20 17	18 39	14 16	11 55	23 35
8	16 10	59	28 54	1 57	20 13	18 52	14 53	13 8	25 20
9	17 9	21	10 59	0 55	20 8	19 4	15 29	14 22	27 4
10	18 7	46	23 15	0 s 10	20 4	19 16	16 6	15 35	28 46
11	19 6	12	5 46	1 16	19 59	19 29	16 42	16 49	0 n 27
12	20 4	41	18 37	2 21	19 54	19 41	17 19	18 2	2 8
D	21 3	13	1 51	3 19	19 49	19 53	17 55	19 15	3 48
14	22 1	45	15 33	4 8	19 45	20 5	18 31	20 28	5 27
15	23 0	21	29 43	4 44	19 40	20 17	19 7	21 41	7 4
16	23 58	59	14 20	5 3	19 36	20 29	19 43	22 55	8 40
17	24 57	39	29 19	5 2	19 31	20 41	20 19	24 8	10 15
18	25 56	21	14m 33	4 40	19 27	20 53	20 55	25 21	11 49
19	26 55	6	29 50	3 58	19 22	21 4	21 30	26 34	13 23
D	27 53	52	15 0	2 59	19 18	21 16	22 6	27 47	14 56
21	28 52	40	29 53	1 49	19 13	21 28	22 41	29 0	16 27
22	29 51	30	14m 21	0 33	19 9	21 39	23 16	0m 13	17 57
23	0 50	22	28 22	0 n 42	19 4	21 51	23 51	1 26	19 27
24	1 49	15	11 55	1 53	19 0	22 3	24 26	2 39	20 56
25	2 48	10	25 2	2 55	18 55	22 14	25 1	3 52	22 23
26	3 47	7	7 46	3 47	18 51	22 26	25 35	5 5	23 50
D	4 46	5	20 12	4 27	18 47	22 37	26 10	6 18	25 15
28	5 45	5	2m 24	4 54	18 42	22 48	26 44	7 31	26 39
29	6 44	7	14 26	5 7	18 38	23 0	27 19	8 43	28 2
30	7 43	11	26 22	5 7	18 33	23 11	27 53	9 56	29 25
Days	u rises	δ rises	♀ sets	♂ sets	h's declin.	u's declin.	δ's declin.	♀'s declin.	♂'s declin.
1	3 m 4	11 a 44	7 a 33	7 a 1	5 s 51	16 n 15	23 n 32	0 s 59	8 n 15
7	2 49	11 40	7 22	6 54	6 2	15 52	23 17	4 5	3 33
13	2 34	11 37	7 12	6 45	6 13	15 30	22 56	7 8	1 s 5
19	2 21	11 34	7 2	6 36	6 24	15 8	22 31	10 6	5 31
25	2 6	11 30	6 52	6 25	6 35	14 46	22 2	12 57	9 39

The LUNATIONS.

Full Moon the 4th day, at 5 minutes past 7 morning.

Last quarter the 12th day, at 37 minutes past 1 morning.

New Moon the 18th day, at 19 minutes past 4 afternoon.

First quarter the 25th day, at 8 minutes past 8 night.

M	Sundays & other	☉	☉	☉'s	☉'s	☉ rises	☉	Clock
D	remark. days	rises	sets	declin.	declin.	& sets	South	aft. ☉
1	Remigius	6 14	5 46	3 27	3 55	3m 17	10 a 19	10 32
2		6 16	5 44	3 51	on 10	4 21	11 0	10 51
3		6 18	5 42	4 14	4 18	5 25	11 42	11 9
D 4	17 S. aft. Trin.	6 20	5 40	4 37	8 17	☉ rises	morn	11 27
5		6 22	5 38	5 0	11 59	5 a 53	0 26	11 45
6	Faith	6 24	5 36	5 23	15 11	6 22	1 11	12 2
7		6 26	5 34	5 46	17 47	6 55	1 58	12 19
8		6 28	5 32	6 9	19 34	7 36	2 47	12 36
9	St. Denys	6 29	5 31	6 32	20 25	8 24	3 38	12 52
10	Ox & Cam. T. b.	O. Mic.	Day 29	6 55	20 12	9 21	4 31	13 7
D 11	18 S. aft. Trin.	6 33	5 27	7 17	18 53	10 29	5 25	13 22
12		6 35	5 25	7 40	16 28	11 40	6 20	13 36
13	Tr. K. Edward	6 37	5 23	8 3	13 3	morn	7 14	13 50
14		6 39	5 21	8 25	8 48	0 59	8 8	14 4
15		6 41	5 19	8 47	3 57	2 19	9 2	14 16
16		6 43	5 17	9 9	1 s 14	3 40	9 56	14 29
17	Etheldred	6 45	5 15	9 31	6 23	5 2	10 50	14 40
D 18	19 S. aft. Trin. St. Luke	6 47	5 13	9 53	11 8	☉ sets	11 46	14 51
19		6 49	5 11	10 15	15 8	5 a 29	0 a 44	15 2
20		6 51	5 9	10 36	18 7	6 10	1 42	15 11
21		6 53	5 7	10 58	19 53	6 56	2 39	15 20
22		6 55	5 5	11 19	20 25	7 51	3 35	15 29
23		6 56	5 4	11 40	19 46	8 52	4 29	15 36
24		6 58	5 2	12 1	18 6	9 56	5 20	15 43
D 25	20 S. aft. Trin. K. G. 3. ac. Crif.	7 0	4 58	12 22	15 37	11 0	6 8	15 50
26	K. Geo. III. pr.	7 2	4 58	12 42	12 30	morn	6 54	15 55
27		7 4	4 56	13 2	8 54	0 6	7 38	16 0
28	St. Sim. & Jude	7 6	4 54	13 23	5 0	1 12	8 20	16 5
29		7 8	4 52	13 42	0 56	2 15	9 2	16 8
30		7 9	4 51	14 2	3 n 11	3 20	9 44	16 11
31		7 11	4 49	14 22	7 12	4 25	10 27	16 13
sec	Day	Length	Helioc.	Helioc.	Helioc.	Helioc.	Helioc.	H
	decreas.	of day	long. ♀	long. ♀	long. ♂	long. ☉	long. ♀	sets
1	5 2	11 32	20 33	15 42	21 17	8 42	28 43	25 0
7	5 26	11 8	20 40	16 10	24 16	14 38	8 12	12 3
13	5 48	10 46	20 56	16 38	27 13	20 34	17 41	0 28
19	6 12	10 22	21 17	17 7	0 9	26 32	27 10	21 13
25	6 23	10 02	21 20	17 35	3 3	28 31	6 39	15 29

1789.

October.

27

Day	lig. begins	Daylig. ends	Durat. twilig.	Pl. D's node	h's latitude	4's latitude	8's latitude	9's latitude	8's latitude
1	4 18	7 41	I 55	21m29	2 22	0 n 42	I n 0	0 27	I 5 43
7	4 31	7 28	I 54	21 10	2 22	0 43	I 7	0 45	2 22
13	4 43	7 16	I 53	20 51	2 22	0 44	I 14	I 4	2 52
19	4 55	7 4	I 53	20 31	2 21	0 45	I 21	I 21	3 6
25	5 6	6 53	I 53	20 12	2 20	0 47	I 29	I 38	2 50
M	0's longitude	D's long.	D's latitude	h's long.	4's long.	8's long.	9's long.	8's long.	
1	8 42 16	8 14	4 n 54	18 29	23 22	28 27	11 9	0 147	
2	9 41 23	20 6	4 28	18 25	23 33	29 1	12 22	2 8	
3	10 40 33	19 58	3 50	18 20	23 44	29 35	13 35	3 27	
D	11 39 44	13 54	3 218	16 23	54	0 8	14 48	4 44	
5	12 38 57	25 55	2 6	18 12	24 5	0 44	16 0	6 0	
6	13 38 12	8 1	1 3	18 8	24 15	1 17	17 13	7 15	
7	14 37 30	20 16	0 3	18 5	24 26	1 49	18 26	8 29	
8	15 36 50	2 11 42	1 11	18 124	36	2 22	19 39	9 41	
9	16 36 13	15 20	2 16	17 57	24 46	2 54	20 52	10 51	
10	17 35 38	28 15	3 16	17 54	24 57	3 27	22 4	11 59	
D	18 35 5	11 29	4 6	17 50	25 7	3 59	23 17	13 5	
12	19 34 35	25 4	4 45	17 46	25 17	4 32	24 29	14 9	
13	20 34 7	9 3	5 8	17 43	25 27	5 4	25 42	15 11	
14	21 33 41	23 24	5 13	17 40	25 37	5 36	26 55	16 10	
15	22 33 18	8 5	4 58	17 36	25 46	6 8	28 7	17 6	
16	23 32 57	23 0	4 22	17 33	25 56	6 39	29 19	17 59	
17	24 32 38	8 2	3 28	17 29	26 5	7 11	0 32	18 49	
D	25 32 21	23 2	2 20	17 26	26 15	7 43	1 44	19 35	
19	26 32 6	7 51	1 3	17 23	26 24	8 14	2 56	20 16	
20	27 31 53	22 21	0 n 16	17 20	26 33	8 45	4 8	20 52	
21	28 31 42	6 28	1 33	17 17	26 42	9 15	5 21	21 23	
22	29 31 34	20 8	2 42	17 14	26 51	9 46	6 33	21 49	
23	m 0 31 27	3 22	3 39	17 11	27 0	10 16	7 45	22 8	
24	1 31 22	16 12	4 24	17 9	27 9	10 47	8 58	22 20	
D	2 31 18	28 42	4 56	17 6	27 18	11 17	10 10	22 25	
26	3 31 16	10 55	5 13	17 4	27 26	11 46	11 22	22 21	
27	4 31 15	22 57	5 16	17 1	27 35	12 16	12 34	22 9	
28	5 31 16	4 51	5 5	16 59	27 43	12 45	13 46	21 48	
29	6 31 19	16 42	4 41	16 57	27 51	13 14	14 58	21 17	
30	7 31 23	28 34	4 6	16 55	27 59	13 43	16 10	20 37	
31	8 31 29	10 30	3 19	16 53	28 7	14 12	17 22	19 47	
Days	4's rises	8's rises	9's sets	8's sets	h's declin.	4's declin.	8's declin.	9's declin.	8's declin.
1	1 50	11 27	6 a 44	6 a 14	6 45	14 n 25	21 n 29	15 s 37	13 s 22
7	1 34	11 23	6 36	6 3	6 54	14 4	20 52	18 4	16 35
13	1 17	11 18	6 30	5 52	7 2	13 45	20 13	20 14	19 9
19	1 0	11 14	6 26	5 39	7 9	13 26	19 32	22 6	20 49
25	0 43	11 8	6 23	5 23	7 15	13 0	18 50	23 37	21 8

The LUNATIONS.

Full Moon the 2d day, at 22 minutes past 12 night.

Last quarter the 10th day, at 30 minutes past 10 morn.

New Moon the 17th day, at 29 minutes past 3 morn.

First quarter the 24th day, at 42 minutes past 3 afternoon.

M D	Sundays & other remark. days	☉ rises	☉ sets	☉'s declin.	D's declin.	D rises & sets	D South	Clock aft. ☉	
D 2	21 S. aft. Tr. All Saint	3	4 47	14 s 41	10 n 59	5 m 30	11 a 12	16 14	
2	Pr. Edw. b.	Soul 15	4 45	15 0	14 21	D rises	11 59	16 14	
3	Prs. Sophia b.	7 17	4 43	15 19	17 9	5 a 1	morn	16 14	
4		7 18	4 42	15 37	19 10	5 38	0 48	16 12	
5	Powder Plot	7 20	4 40	15 55	20 14	6 25	1 39	16 10	
6	Leonard. Mich.	Ter. b	4 38	16 13	20 16	7 19	2 31	16 7	
7	D. Cumberl. b.	7 22	4 36	16 31	19 12	8 21	3 24	16 3	
D 9	22 S. aft. Tr. Prs. A S.	24	4 35	16 48	17 3	9 32	4 1	15 59	
9	Ld. Mayor's day at Lon.	4 33	17 5	13 56	10 46	5 10	15 53		
10		7 29	4 31	17 22	9 59	morn	6 3	15 47	
11	St Martin.	7 30	4 30	17 39	5 26	0 3	6 55	15 39	
12		7 32	4 28	17 55	0 31	1 21	7 47	15 31	
13	Britius	7 33	4 27	18 11	4 s 30	2 41	8 39	15 22	
14		7 35	4 25	18 26	9 18	4 1	9 32	15 12	
D 15	23 S. aft. Trin.	Mach.	4 23	18 42	13 33	5 22	10 27	15 1	
16		7 38	4 22	18 57	16 57	6 40	11 24	14 50	
17	Hugh B. of Lin.	7 40	4 20	19 11	19 15	D sets	0 a 21	14 37	
18		7 41	4 19	19 26	20 19	5 a 34	1 18	14 24	
19		7 42	4 18	19 39	20 9	6 33	2 14	14 10	
20	Edmund K & M.	7 44	4 16	19 53	18 51	7 37	3 8	13 55	
21		7 45	4 15	20 6	16 36	8 42	3 58	13 39	
D 22	24 S. aft. Trin.	Cæcilia	4 13	20 19	13 37	9 49	4 45	13 23	
23	St. Clement.	7 48	4 12	20 31	10 8	10 55	5 30	13 6	
24		7 49	4 11	20 44	6 17	morn	6 13	12 48	
25	P. Glof. born	Cather.	4 9	20 55	2 14	0 0	6 55	12 29	
26		7 52	4 8	21 6	1 n 53	1 4	7 36	12 9	
27		7 53	4 7	21 17	5 56	2 7	8 18	11 49	
28	Mic. Term end.	7 54	4 6	21 28	9 48	3 11	9 1	11 29	
D 29	Adv. Sunday.	7 55	4 5	21 38	13 20	4 16	9 47	11 7	
30	St. Andrew.	7 56	4 4	21 48	16 20	5 21	10 35	10 45	
Day	Day decreaf.	Length of day	Helioc. long. ♀	Helioc. long. ♀	Helioc. long. ♂	Helioc. long. ☉	Helioc. long. ♀	Helioc. long. ♂	h sets
1	7 0	9 34	21 34	18 8	6 20	24 9 8	32 17	43 19	55 2m 11
7	7 22	9 12	21 46	18 36	9 15	15 33	27 12	25 8	1 47
13	7 40	8 54	21 58	19 4	12 5	21 36	6 42	2 43	1 22
19	7 58	8 36	22 10	19 33	14 53	27 30	16 13	8 17	0 57
25	8 16	8 18	22 20	1 17	40 3	44 25	45 8	12 4	0 32

1789.

November.

29

Days	Daylig. begins	Day lig. ends	Durat. twilig.	Pl. D's node	h's latitude	u's latitude	δ's latitude	♀'s latitude	♂'s latitude
1	5 17	6 42	1 55	19m50	2 s 19	0 n 48	1 n 35	1 s 55	1 s 29
7	5 25	6 35	1 59	19 31	2 18	0 49	1 47	2 8	0 n 30
13	5 33	6 27	2 0	19 12	2 17	0 51	1 56	2 18	2 2
19	5 41	6 19	2 1	18 53	2 16	0 52	2 6	2 24	2 28
25	5 48	6 12	2 3	18 34	2 15	0 50	2 16	2 28	2 10
M D	☉'s longitude.	D's long.	D's latitude	h's long.	u's long.	δ's long.	♀'s long.	♂'s long.	
D	m 9 31 36	22 v 32	2 n 23	16 x 51	28 Ω 15	14 Ω 41	18 f 34	18 m 48	
2	10 31 46	4 8 42	1 20 16	49 28	23 15	9 19	46 17	41	
3	11 31 57	17 3 0	13 16	47 28	30 15	37 20	58 16	28	
4	12 32 10	29 34 0	s 56 16	46 28	38 16	4 22	9 15	12	
5	13 32 25	12 II 18	2 4 16	44 28	45 16	32 23	21 13	53	
6	14 32 42	25 15 3	6 16	43 28	52 17	0 44	33 12	34	
7	15 33 0	8 25 4	0 16	42 28	5 17	27 25	44 11	17	
D	16 33 20	21 49 4	42 16	40 29	6 17	54 26	56 10	6	
9	17 33 43	5 Ω 29	5 8 16	39 29	12 18	21 28	7 9	3	
10	18 34 9	19 23 5	18 16	38 29	10 18	47 29	18 8	8	
11	19 34 36	3 m 32	5 8 16	37 29	25 19	13 0	30 7	24	
12	20 35 5	17 53 4	39 16	36 29	31 19	30 1	41 6	53	
13	21 35 36	2 23 3	53 16	36 29	37 20	5 2	52 6	33	
14	22 36 9	16 58 2	51 16	35 29	43 20	28 4	3 6	D 24	
D	23 36 44	1 m 13	1 37 16	35 29	48 20	53 5	14 6	27	
16	24 37 20	16 2 0	19 16	35 29	54 21	17 6	25 6	39	
17	25 37 58	0 f 19	1 n 0 16	34 29	59 21	42 7	36 6	58	
18	26 38 37	14 19 2	14 16	34 0 m 5	12 22	6 8	47 7	30	
19	27 39 18	27 58 3	18 16	D 34 0	10 22	29 9	58 8	13	
20	28 40 1	11 14 4	10 16	34 0	15 22	52 11	9 9	2	
21	29 40 44	24 8 4	47 16	34 0	19 23	14 12	19 9	55	
D	f 0 41 29	6 42 5	9 16	35 0	24 23	37 13	30 10	53	
23	1 42 14	18 59 5	17 16	35 0	28 23	59 14	40 11	58	
24	2 43 1	1 x 2 5	10 16	35 0	33 24	21 15	51 13	9	
25	3 43 49	12 57 4	50 16	36 0	37 24	42 17	1 14	21	
26	4 44 37	24 48 4	18 16	36 0	41 25	3 18	11 15	34	
27	5 45 26	6 v 41 3	35 16	37 0	45 25	23 19	21 16	49	
28	6 46 17	18 38 2	42 16	38 0	48 25	44 20	31 18	5	
D	7 47 8	0 8 45 1	41 16	39 0	52 26	4 21	40 19	27	
30	8 48 0	13 5 0	35 16	40 0	55 26	23 22	50 20	50	
Days	u's rises	δ's rises	♀ sets	♂ sets	h's declin.	u's declin.	δ's declin.	♀'s declin.	♂'s declin.
1	0 m 22	11 a 0	6 a 22	4 a 57	7 s 20	12 n 51	18 n 1	24 s 53	18 s 51
7	0 2 10	52	6 25	rises	7 22	12 37	17 19	25 32	14 45
13	11 a 41	10 42	6 30	6 m 2	7 24	12 24	16 39	25 44	11 48
19	11 19 10	30	6 39	5 42	7 24	12 14	16 1	25 30	11 56
25	10 56 10	17	6 49	5 54	7 21	12 6	15 27	24 50	14 6

The LUNATIONS.

Full Moon the 2d day, at 39 minutes past 4 afternoon.

Last quarter the 9th day, at 17 minutes past 6 afternoon.

New Moon the 16th day, at 43 minutes past 4 afternoon.

First quarter the 24th day, at 11 minutes past 1 afternoon.

M D	Sundays & other remark. days	☉ rises	☉ sets	☉'s declin.	☾'s declin.	☾ rises & sets	☾ South	Clock aft. ☉
1		7 57	4 3	21 s 57	18 n 38	6m 26	11 a 25	10 22
2		7 58	4 2	22 6	20 3	☾ rises	morn	9 59
3		7 59	4 1	22 14	20 24	5 a 6	0 17	9 35
4		8 0	4 0	22 22	19 37	6. 9	1 11	9 10
5		8 1	3 59	22 29	17 43	7 16	2 6	8 45
6	2 S. in Advent	8 2	3 58	22 36	14 46	8 29	3 0	8 19
7	(Nichol.	8 3	3 57	22 43	10 58	9 44	3 53	7 53
8	Conception	8 3	3 57	22 49	6 33	11 1	4 44	7 26
9		8 4	3 56	22 55	1. 45	morn	5 35	6 59
10		8 5	3 55	23 0	3 s 10	0 18	6 25	6 32
11		8 5	3 55	23 5	7 55	1 37	7 17	6 4
12		8 6	3 54	23 10	12 15	2 53	8 8	5 35
13	3 S. in Advent	Lucy 6	3 54	23 13	15 5	4 11	9 2	5 6
14		8 7	3 53	23 17	18 32	5 24	9 57	4 37
15		8 7	3 53	23 20	20 3	6 33	10 53	4 8
16	O.Sap. Cam. Te.	E n. W.	3 53	23 22	20 23	☾ sets	11 50	3 38
17	Oxf. Term ends	8 8	3 52	23 24	19 32	5 a 0	0 a 44	3 9
18		8 8	3 52	23 26	17 38	6 12	1 36	2 39
19		8 8	3 52	23 27	14 54	7 20	2 25	2 9
20	4 S. in Advent	8 8	3 52	23 28	11 33	8 26	3 11	1 30
21	St. Thomas	Shor. d.	3 52	23 28	7 46	9 32	3 55	1 9
22		8 8	3 52	23 28	3 44	10 36	4 37	0 38
23		8 8	3 52	23 27	0 n 23	11 39	5 18	0 8
24		8 8	3 52	23 26	4 28	morn	6 0	obe 22
25	Christmas day	8 7	3 53	23 24	8 23	0 43	6 42	0 52
26	St. Stephen	8 7	3 53	23 22	12 1	1 45	7 26	1 22
27	S. aft. Christm.	St John	3 53	23 19	15 13	2 51	8 12	1 51
28	Holy Innocents	8 6	3 54	23 16	17 48	3 55	9 1	2 21
29		8 6	3 54	23 12	19 35	5 0	9 52	2 50
30		8 6	3 54	23 8	20 22	5 56	10 46	3 19
31	Silvester	8 5	3 55	23 4	20 2	6 49	11 42	3 47
Days	Day decreaf.	Length of day	Helioc. long. ♀	Helioc. long. ♂	Helioc. long. ♂	Helioc. long. ☉	Helioc. long. ♀	h sets
1	8 28	8 6	22 34	20 30	20 20	9 11 49	5 11 12	3 35 om 6
7	8 40	7 54	22 46	20 58	23 12 15	5 5	14 51	24 14 11 a 42
13	8 46	7 48	22 58	21 26	25 56	22 1	14 26	13 12 11 17
19	8 50	7 44	23 9	21 54	28 39	28 8	4 8 2	0 18 10 52
25	9 m. 2	7 46	23 21	22 23	1 21	4 15	13 35	16 50 10 28

1789.

December.

31

Days	Day lig. begin.	Day lig. ends	Durat. twilig.	Pl. D's node	h's latitude	u's latitude	δ's latitude	♀'s latitude	♂'s latitude
1	5 54	6 6	2 3	18m 15	2 s 14	0 n 55	2 n 27	2 s 27	1 n 34
7	5 57	6 3	2 6	17 56	2 13	0 56	2 39	2 22	0 50
13	5 59	6 1	2 7	17 37	2 12	0 57	2 52	2 13	0 6
19	6 1	5 59	2 7	17 18	2 11	0 59	3 4	1 58	0 s 35
25	6 1	5 59	2 6	16 59	2 9	1 1	3 16	1 39	1 11
M D	☉'s longitude		D's long.	D's latitude	h's long.	u's long.	δ's long.	♀'s long.	♂'s long.
1	9 48	53	25 83	0 s 3	16 42	0 n 55	26 42	24 45	22 m 15
2	10 49	48	8 113	1 43	16 43	1 27	1 25	9 23	41
3	11 50	43	21 37	2 48	16 44	1 47	10 26	18 25	8
4	12 51	39	4 59	3 45	16 46	1 7	27 32	27 28	26 35
5	13 52	37	18 36	4 30	16 48	1 9	27 54	28 37	28 3
D	14 53	35	2 23	5 0	16 50	1 11	28 10	29 46	29 32
7	15 54	35	16 20	5 13	16 52	1 13	28 26	0 55	1 1
8	16 55	36	0 23	5 8	16 54	1 15	28 42	2 3	2 31
9	17 56	38	14 30	4 43	16 56	1 16	28 57	3 12	4 1
10	18 57	42	28 40	4 2	16 50	1 18	29 12	4 20	5 31
11	19 58	46	12 51	3 6	17 1	1 19	29 26	5 28	7 2
12	20 59	51	27 0	1 58	17 3	1 20	29 39	6 36	8 33
D	22 0	58	11 m 6	0 44	17 6	1 20	29 52	7 44	10 5
14	23 2	6	25 6	0 n 33	17 9	1 21	0 4	8 52	11 37
15	24 3	14	8 58	1 46	17 11	1 21	0 15	9 59	13 9
16	25 4	23	22 37	2 53	17 14	1 21	0 26	11 6	14 41
17	26 5	33	6 3	3 48	17 17	1 21	0 37	12 13	16 13
18	27 6	43	19 11	4 30	17 20	1 21	0 47	13 20	17 46
19	28 7	53	2 2	4 57	17 23	1 20	0 57	14 26	19 19
D	29 9	3	14 35	5 9	17 26	1 20	1 9	15 33	20 52
21	0 10	14	26 52	5 6	17 29	1 19	1 17	16 39	22 25
22	1 11	25	8 56	4 50	17 32	1 18	1 24	17 45	23 59
23	2 12	35	20 51	4 22	17 35	1 16	1 30	18 51	25 32
24	3 13	46	2 42	3 42	17 39	1 15	1 35	19 57	27 6
25	4 14	57	14 33	2 53	17 42	1 12	1 40	21 2	28 40
26	5 16	8	26 30	1 56	17 45	1 11	1 44	22 7	0 15
D	6 17	18	8 38	0 53	17 48	1 9	1 48	23 11	1 50
28	7 18	28	21 2	0 s 14	17 52	1 7	1 52	24 15	3 25
29	8 19	38	3 45	1 22	17 56	1 5	1 55	25 19	5 0
30	9 20	48	16 49	2 27	18 0	1 2	1 58	26 23	6 36
31	10 21	57	0 16	3 26	18 5	0 59	1 59	27 27	8 12
Days	☿'s rises	♂'s rises	♀'s sets	♂'s rises	h's declin.	u's declin.	δ's declin.	♀'s declin.	♂'s declin.
1	10 a 32	10 a 1	7 a 3	6 m 16	7 s 18	12 n 0	4 n 56	23 s 44	16 s 51
7	10 7	9 45	7 16	6 41	7 14	11 57	14 31	22 17	19 34
13	9 42	9 26	7 30	7 7	7 8	11 55	14 12	20 30	21 53
19	9 14	9 5	7 43	7 33	7 0	11 57	14 0	18 24	23 37
25	8 47	8 41	7 57	7 55	6 51	12 0	13 57	16 4	24 38

IN the course of this year there will happen four eclipses, two of the Sun, and two of the Moon; as follows:

I. May 9th, ☾ eclipsed, invisible.

		h	m
Beginning	— —	8	38 morning.
Middle	— —	9	31
End	— —	10	24

Digits eclipsed $2^{\circ} 54'$ on ☾'s northern limb.

II. May 24th, ☉ eclipsed, invisible.

The ☉ at 10 h. $20\frac{1}{2}$ m. in longitude $2^{\circ} 4' 3''$; the ☾'s lat. $30^{\circ}\frac{1}{2}$ S. The ☉ will be centrally eclipsed on the meridian at 10 h 18m in long. $154^{\circ}\frac{1}{2}$ west, and lat. $11^{\circ}\frac{1}{4}$ South.

III. Nov. 2d, ☾ eclipsed, visible.

		h	m
Beginning	— —	11	$27\frac{3}{4}$ night.
Middle	— —	12	$32\frac{1}{4}$
End	— —	13	$36\frac{3}{4}$

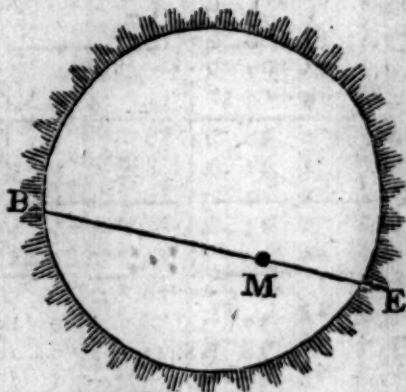
Digits eclipsed, $3^{\circ} 40'$ on ☾'s southern limb.

IV. Nov. 16th, ☉ eclipsed, invisible.

The ☉ at 15 h 29 m in long. $7^{\circ} 25' 16''$, the ☾'s lat. $33'$ n. The ☉ will be centrally eclipsed on the meridian, at 15 h 22 m in long. $129^{\circ}\frac{1}{2}$ east, and lat. $14^{\circ}\frac{3}{4}$ north.

TRANSIT OF MERCURY.

There will this year be a transit of the planet Mercury over the disc of the sun, on Nov. 5, beginning at 1 h 10 m. afternoon, when ☿'s lat. is $9\frac{1}{3}$ f. and ending at 6 h. 4 m. afternoon, when ☿'s lat. is $5\frac{1}{4}$ f. In the annexed figure B is beginning, E the end, and M is the place of ☿ at 4 h. 40 m. when the sun sets.



Obliquity of the
Ecliptic.

Equation of the Equi-
noctial Points.

Jan. 1.	23° 27' 55".8	- - -	+ 16".4
April 1.	23 27 55.0	- - -	+ 15. 8
July 1.	23 27 54.1	- - -	+ 15. 0
Oct. 1.	23 27 53.3	- - -	+ 14. 1
Dec. 31.	23 27 52.6	- - -	+ 13. 1

Time of High-Water at LONDON in the morning and afternoon of every day in the year.

Mo. o. Days	JANUARY				FEBRUARY				MARCH				APRIL				Mo. o. Days	
	morn.		aftern.		morn.		aftern.		morn.		aftern.		morn.		aftern.			
	h	m	h	m	h	m	h	m	h	m	h	m	h	m	h	m		
1	4	45	5		5	14	5	32	4	16	4	34	5	25	5	49	1	
2	5	17	5	35	5	53	6	17	4	51	5	11	6	17	6	47	2	
3	5	54	6	14	6	43	7	11	5	32	5	56	7	18	7	50	3	
4	6	36	7		7	42	8	14	6	23	6	52	8	25	9	2	4	
5	7	25	7	53	8	50	9	29	7	23	7	57	9	38	10	16	5	
6	8	22	8	55	10	7	10	47	8	31	9	12	10	51	11	26	6	
7	9	28	10	7	11	26			9	50	10	29	11	58			7	
8	10	43	11	20		4	0	36	11	6	11	42		28	0	58	8	
9	11	55			1	8	1	38	0	15			1	26	1	54	9	
10	0	31	1	4	2	8	2	34	0	47	1	16	2	22	2	50	10	
11	1	36	2	6	2	57	3	16	1	44	2	22	3	5	3	23	11	
12	2	36	3	3	3	32	3	49	2	38	2	58	3	41	3	59	12	
13	3	18	3	36	4	5	4	25	3	16	3	34	4	16	4	37	13	
14	3	53	4	11	4	45	5	6	3	51	4	9	4	59	5	21	14	
15	4	30	4	49	5	26	5	50	4	29	4	49	5	43	6	7	15	
16	5	10	5	31	6	17	6	44	5	11	5	34	6	33	6	58	16	
17	5	53	6	18	7	13	7	44	5	59	6	25	7	25	7	52	17	
18	6	45	7	12	8	15	8	48	6	53	7	21	8	22	8	50	18	
19	7	41	8	13	9	22	9	55	7	51	8	22	9	20	9	48	19	
20	8	46	9	20	10	28	10	59	8	54	9	26	10	16	10	42	20	
21	9	56	10	29	11	30	11	58	9	59	10	38	11		11	30	21	
22	11	0	11	32		0	0	23	10	56	11	24		0	0	3	22	
23			0	4	0	48	1	11	11	51			0	32	0	50	23	
24	0	32	0	58	1	33	1	53	0	16	0	39	1	14	1	37	24	
25	1	23	1	46	2	14	2	35	1	2	1	23	2	1	2	26	25	
26	2	10	2	31	2	52	3	6	1	45	2	6	2	47	3	5	26	
27	2	49	3	2	3	21	3	33	2	26	2	46	3	23	3	40	27	
28	3	17	3	30	3	47	4	0	3	3	3	18	3	57	4	14	28	
29	3	43	3	56					3	34	3	49	4	35	4	58	29	
30	4	10	4	24					4	5	4	22	5	20	5	44	30	
31	4	40	4	57					4	42	5	3					31	

This Table may serve the following Places, by adding

	h	m
For Tinmouth Haven, Hartle-pool, and Amsterdā	0	30
Brest — — — — —	1	0
Scilly — — — — —	1	45
Mount's Bay — — — — —	1	55
Bridlington Pier and Humber — — — — —	2	0

Time of High-Water at LONDON in the morning and afternoon of every day in the year.

Mo. Days	MAY				JUNE				JULY				AUGUST				No. Days	
	morn.		aftern.		morn.		aftern.		morn.		aftern.		morn.		aftern.			
	h	m	h	m	h	m	h	m	h	m	h	m	h	m	h	m		
1	6	11	6	40	7	47	8	18	8	16	8	51	10	19	10	44	1	
2	7	9	7	39	8	50	9	25	9	25	10	1	11	17	11	50	2	
3	8	11	8	44	9	58	10	33	10	34	11	8				19	3	
4	9	19	9	56	11	6	11	31	11	41			0	45	1	11	4	
5	10	28	11	2		11	0	11	0	15	0	45	1	34	1	58	5	
6	11	3			0	42	1	11	1	13	1	40	2	21	2	40	6	
7	0	8	0	37	1	38	2	6	2	5	2	28	2	57	3	11	7	
8	1	6	1	35	2	32	2	53	2	40	3	7	3	25	3	38	8	
9	2	3	2	29	3	11	3	29	3	22	3	36	3	51	4	5	9	
10	2	52	3	12	3	44	4	0	3	49	4	3	4	19	4	35	10	
11	3	29	3	46	4	15	4	33	4	16	4	32	4	52	5	9	11	
12	4	2	4	21	4	51	5	8	4	49	5	5	5	26	5	47	12	
13	4	41	5	0	5	24	5	42	5	21	5	39	6	11	6	36	13	
14	5	19	5	40	6	3	6	24	5	55	6	20	7	3	7	33	14	
15	6	7	6	24	6	46	7	8	6	44	7	7	8	4	8	39	15	
16	6	49	7	12	7	32	7	58	7	33	8	3	9	16	9	53	16	
17	7	37	8	2	8	26	8	54	8	34	9	7	10	31	11	8	17	
18	8	26	8	56	9	25	9	56	9	43	10	17	11	45			18	
19	9	24	9	52	10	28	11	0	10	54	11	30	0	18	0	50	19	
20	10	21	10	49	11	33					0	6	1	20	1	49	20	
21	11	18	11	46	0	5	0	36	0	39	1	11	2	17	2	44	21	
22			0	15	1	6	1	35	1	41	2	11	3	4	3	23	22	
23	0	42	1	8	2	4	2	33	2	36	2	59	3	41	3	57	23	
24	1	36	2	2	2	55	3	15	3	17	3	35	4	16	4	36	24	
25	2	28	2	51	3	34	3	51	3	52	4	9	4	56	5	17	25	
26	3	11	3	29	4	10	4	29	4	29	4	50	5	42	6	7	26	
27	3	47	4	5	4	45	5	10	5	10	5	31	6	36	7	5	27	
28	4	25	4	47	5	32	5	54	5	56	6	23	7	37	8	8	28	
29	5	8	5	30	6	20	6	43	6	50	7	19	8	42	9	16	29	
30	5	55	6	22	7	15	7	44	7	51	8	25	9	49	10	22	30	
31	6	49	7	16					9	0	9	35	10	54	11	25	31	

Adding

	h	m
For Fowey, Loo and Plymouth	—	—
Dartmouth, Harbrough and Hull	—	—
Torbay and Tinmouth	—	—
Exmouth, Topsham and Lime	—	—
Weymouth	—	—
Bridgewater and Texel	—	—
Portland and Hartlew	—	—

Time of High-Water at LONDON in the morning and afternoon of every day in the year.

Mo. Days	SEPTEMBER		OCTOBER		NOVEMBER		DECEMBER		Mo. Days
	morn. h m	altern. h m	morn. h m	altern. h m	morn. h m	altern. h m	morn. h m	altern. h m	
1	11 53			0 18	0 50	1 13	0 58	1 24	1
2	0 20	0 45	0 41	1 3	1 36	2 0	1 49	2 15	2
3	1 7	1 30	1 24	2 4	2 24	2 44	2 40	3 0	3
4	1 51	2 12	2 7	2 27	3 2	3 20	3 18	3 36	4
5	2 34	2 49	2 47	3 3	3 35	3 51	3 53	4 11	5
6	3 5	3 19	3 18	3 33	4 8	4 27	4 30	4 50	6
7	3 32	3 46	3 48	4 4	4 48	5 9	5 10	5 32	7
8	4 0	4 16	4 20	4 38	5 30	5 55	5 55	6 21	8
9	4 33	4 51	4 59	5 20	6 22	6 49	6 48	7 15	9
10	5 10	5 31	5 43	6 9	7 18	7 49	7 44	8 16	10
11	5 53	6 20	6 37	7 6	8 22	8 56	8 51	9 25	11
12	6 4	7 17	7 38	8 11	9 31	10 5	9 59	10 34	12
13	7 49	8 23	8 47	9 22	10 39	11 13	11 9	11 43	13
14	9 1	9 39	9 59	10 34	11 48			0 17	14
15	10 1	10 55	11 9	11 42	0 19	0 50	0 47	1 17	15
16	11 29			0 15	1 20	1 48	1 46	2 15	16
17	0 2	0 34	0 45	1 14	2 16	2 43	2 39	2 59	17
18	1 4	1 32	1 43	2 11	3 4	3 23	3 17	3 34	18
19	2 1	2 29	2 36	2 59	3 41	3 57	3 49	4 4	19
20	2 51	3 11	3 10	3 38	4 16	4 36	4 21	4 39	20
21	3 30	3 47	3 56	4 13	4 55	5 14	4 55	5 12	21
22	4 6	4 25	4 36	4 57	5 35	5 56	5 30	5 48	22
23	4 46	5 8	5 19	5 41	6 19	6 43	6 8	6 30	23
24	5 32	5 56	6 6	6 32	7 5	7 29	6 52	7 15	24
25	6 21	6 52	6 57	7 23	7 55	8 22	7 40	8 6	25
26	7 21	7 51	7 52	8 21	8 49	9 16	8 34	9 2	26
27	8 23	8 55	8 49	9 18	9 44	10 12	9 34	10 5	27
28	9 27	9 59	9 46	10 15	10 40	11 7	10 36	11 7	28
29	10 28	10 56	10 42	11 9	11 36		11 39		29
30	11 25	11 54	11 36		0 6	0 33	0 11	0 41	30
31			0 2	0 26			1 0	1 25	31

Subtracting

h m

For Leigh, Maes, and Gouries Gut	—	—	—	—	0	5
Gravesend, Rochester, and Rammekins	—	—	—	—	1	20
Buoy of the Nore and Flushing	—	—	—	—	1	30
Portsmouth, Ostend, Shoe-Beacon, and Red-Sand	—	—	—	—	2	0
Harwich, Dover, Spithead, and Calais	—	—	—	—	3	0
Gunfleet, Hastings, Shoreham, Orfordness, and Diep	—	—	—	—	4	0
Yarmouth Pier and Needle	—	—	—	—	4	40
St. Helen's and Havre-de-Grace	—	—	—	—	5	30

The Eclipses of Jupiter's

JANUARY	FEBRUARY	MARCH	APRIL
Immersion	Emerfions	Emerfions	Emerfions
1 1 12 15	1 23 50 26	2 7 30 36	1 9 47 11
2 19 39 47	3 18 18 52	4 1 59 42	3 4 16 27
4 14 7 28	5 12 47 21	5 20 28 48	4 22 45 43
6 8 35 8	7 7 15 52	7 14 57 56	6 17 14 57
8 3 2 53	9 1 44 27	9 9 27 4	8 11 44 10
9 21 30 39	10 20 13 3	11 3 56 15	10 6 13 23
11 15 58 27	12 14 41 44	12 22 25 27	12 0 42 35
13 10 26 21	14 9 10 25	14 16 54 40	13 19 11 48
Emerfions	16 3 39 12	16 11 23 53	15 13 40 59
15 7 8 54	17 22 8 2	18 5 53 6	17 8 10 8
17 1 36 52	19 16 36 50	20 0 22 20	19 2 39 16
18 20 4 52	21 11 5 42	21 18 51 35	20 21 8 23
20 14 32 55	23 5 34 36	23 13 20 50	22 15 37 29
22 9 0 58	25 0 3 34	25 7 50 6	24 10 6 32
24 3 29 4	26 18 32 33	27 2 19 23	26 4 35 36
25 21 57 14	28 13 1 34	28 20 48 39	27 23 4 36
27 16 25 28		30 15 17 54	29 17 33 34
29 10 53 44			
31 5 22 5			
MAY	JUNE	JULY	AUGUST
Emerfions	Emerfions	The Eclipses of Jupiter's Satellites will not be visible this month, Jupiter being too near the Sun.	The Eclipses of the Satellites of Jupiter will not be visible this month, Jupiter being too near the Sun.
1 12 2 34	2 8 38 44		
3 6 31 29	4 3 7 10		
5 1 0 23	5 21 35 34		
6 19 29 16	7 16 3 57		
8 13 58 5	9 10 32 19		
10 8 26 54	11 5 0 39		
12 2 55 41	12 23 29 0		
13 21 24 25	14 17 57 20		
15 15 53 9	16 12 25 39		
17 10 21 50	18 6 53 58		
19 4 50 29	20 1 22 16		
20 23 19 7	21 19 50 34		
22 17 47 42	23 14 18 52		
24 12 16 16	25 8 47 10		
26 6 44 49	27 3 15 29		
28 1 13 20	28 21 43 48		
29 19 41 49	30 16 12 9		
31 14 10 18			

first Satellite for 1789.

SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
Immersion	Immersion	Immersion	Immersion
2 7 10 39	2 9 25 27	1 11 34 6	1 13 30 35
4 1 39 46	4 3 54 30	3 6 2 31	3 7 58 16
5 20 8 53	5 22 23 26	5 0 30 52	5 2 25 54
7 14 38 1	7 16 52 25	6 18 59 10	6 20 53 29
9 9 7 10	9 11 21 18	8 13 27 25	8 15 21 3
11 3 36 18	11 5 50 12	10 7 55 37	10 9 48 37
12 22 5 25	13 0 19 3	12 2 23 47	12 4 16 8
14 16 34 34	14 18 47 52	13 20 51 53	13 22 43 41
16 11 3 41	16 13 16 40	15 15 19 57	15 17 11 10
18 5 32 49	18 7 45 26	17 9 47 58	17 11 38 41
20 0 1 55	20 2 14 9	19 4 15 57	19 6 6 9
21 18 31 3	21 20 42 50	20 22 43 52	21 0 33 39
23 13 0 9	23 15 11 27	22 17 11 44	22 19 1 8
25 7 29 14	25 9 40 6	24 11 39 36	24 13 28 37
27 1 58 19	27 4 8 39	26 6 7 25	26 7 56 7
28 20 27 24	28 22 37 11	28 0 35 10	28 2 23 36
30 14 56 28	30 17 5 40	29 19 2 54	29 20 51 8
			31 15 18 40

The Times of the Eclipses contained in this Table, are adapted to the Meridian of the Royal Observatory at Greenwich, and afford an excellent Method to discover the Longitude, or Difference of Meridians, between that and any other Place; which I shall illustrate by an EXAMPLE:

Suppose on the 28th Day of December of this Year, the Time of the Immersion of Jupiter's first Satellite be observed (by a Telescope) in an unknown Meridian, to happen at 4 h. 11 min. 56 sec. at night; I find by the Table, that the Time of this Immersion will happen at the British Observatory, at 2 h. 23 min. 36 sec. the same day: The Difference of the Times is 1 hour 48 min. 20 sec. which being converted into Degrees and Minutes of the Equator, will make 27 deg. 5 min. the Longitude of the Place of Observation, to the East, because the Time is more than that at the British Observatory.

Speculum Phænomenorum

JANUARY		FEBRUARY		MARCH	
3	♂ in aphelio	4	☾ in apogeo	3	♂ ☉ ♀ 4½h.
8	☾ in apogeo	7	♂ ♀ ☾ 16h.	3	☾ in apogeo
11	♂ ♀ ☾ 11h.	9	♀ in ☿	6	♂ ♀ ☾ 23h.
14	♂ ☉ ♀ 4oh.	14	♂ in ☿	8	♂ ☉ ♀ 9h.
19	☉ in ☿ 4oh. 38m.	16	☾ in perigeo	13	♀ in aphelio
20	☾ in apogeo	17	☉ in ♄ 15h. 28m.	16	♀ stationary
22	♂ ♀ ☾ 22h.	19	♂ in perihelio	16	☾ in perigeo
23	♂ ☉ ♀ 6h.	20	♂ elong. max.	19	☉ in ♃ 15h. 53m.
25	♂ ♀ ☾ 3h.	22	♂ ♀ ☾ 7h.	23	♂ stationary
25	♂ ♀ ☾ 15h.	23	♂ ♀ ☾ 7h.	23	♂ ♀ ☾ 3h.
28	♂ ♀ ☾ 6h.	25	♂ ♀ ☾ 1h.	24	♂ ♀ ☾ 11h.
		26	♂ ♀ ☾ 4oh.	24	♂ ♀ ☾ 14h.
		28	♂ stationary	24	♂ ♀ ☾ 16h.
				24	♂ in perihelio
				24	♂ in ☿
				30	☾ in apogeo
APRIL		MAY		JUNE	
3	♂ ♀ ☾ 8h.	8	☾ eclipsed, invis.	2	♀ in ☿
4	♂ elong. max.	9	☾ in perigeo	5	☾ in perigeo
4	♂ in aphelio	13	♂ in ☿	13	☉ ☉ ♀ 5h.
9	☉ ☉ ♀ 2oh.	15	♂ ☉ ♀ 1h.	15	♂ ♀ ☾ 3h.
12	☾ in perigao	18	♂ ♀ ☾ 16h.	17	♂ elong. max.
19	☉ in ♄ 4h. 38m.	18	♂ in perihelio	19	♂ ♀ ☾ 19h.
21	♂ ♀ ☾ 9h.	20	☉ in ♀ 5h. 13m.	20	♂ in ☿
22	♂ ♀ ☾ 17h.	21	♂ ♀ ☾ 19h.	20	☾ in apogeo
23	♂ ♀ ☾ 2h.	24	♂ ♀ ☾ 7h.	20	☉ in ☿ 13h. 55m.
24	♂ ♀ ☾ 2h.	24	☾ in apogeo	23	♂ ♀ ☾ 6h.
26	☾ in apogeo	24	☉ eclipsed, invis.	24	♂ ♀ ☾ 14h.
30	♂ ♀ ☾ 8h.	25	♂ ♀ ☾ 1oh.	24	♂ ♀ ☾ 22h.
		28	♂ ♀ ☾ 7h.	29	☉ in aphelio
		30	♂ ☉ ♀ 2oh.	30	♂ in aphelio

ad Annum 1789.

JULY		AUGUST		SEPTEMBER	
1	♂ stationary	2	♂ ☉ 24 12h.	4	♂ ♀ ☉ 19h.
3	♀ in perihelio	4	♂ elong. m-x.	9	☉ in apogeo
3	☉ in perigeo	8	♂ ♀ ☉ 16h.	11	♂ ☉ ♀ 20h.
4	♂ stationary	9	♂ in ☉	14	♂ ☉ ☉ 5h.
12	♂ ♀ ☉ 11h.	13	☉ in apogeo	16	♂ 24 ☉ 10h.
14	♂ ☉ ♀ 15h.	14	♂ in perihelio	16	♂ in ☉
17	☉ in apogeo	16	♂ ☉ ☉ 14h.	20	♂ ☉ ☉ oh.
18	♂ ☉ ☉ 19h.	17	♂ 24 ☉ 14h.	20	♂ ♀ ☉ 23h.
21	♂ ☉ ☉ 11h.	19	♂ ☉ ☉ 21h.	21	♀ in ☉
22	♂ 24 ☉ 18h.	22	♂ ♀ ☉ oh.	22	☉ in perigeo
22	☉ in ☉ oh. 44m.	22	☉ in ☉ 7h. 3m.	22	☉ in ☉ 3h. 28m.
23	♂ ♀ ☉ 5h.	26	☉ in perigeo	27	♂ in aphelio
26	♂ stationary	28	♂ ☉ ♀ 11h.		
28	♂ in ☉				
29	☉ in perigeo				
OCTOBER		NOVEMBER		DECEMBER	
1	♂ ♀ ☉ 20h.	2	☉ eclipsed visib.	7	♂ ☉ ☉ 21h.
7	☉ in apogeo	3	☉ in apogeo	7	☉ ☉ ♀ 23h.
12	♂ ☉ ☉ 17h.	5	♂ ☉ ♀ 3h.	8	♂ 24 ☉ 2h.
13	♂ elong. max.	5	♂ in ☉	13	♂ in ☉
14	♂ 24 ☉ 3h.	9	♂ ☉ ☉ 23h.	13	☉ in perigeo
19	♂ ☉ ☉ 21h.	10	☉ ☉ ☉ 8h.	15	♂ ☉ ☉ 8h.
19	☉ in perigeo	10	♂ 24 ☉ 17h.	16	24 stationary
20	♂ ♀ ☉ 22h.	10	♂ in perihelio	20	♂ ♀ ☉ 2h.
22	☉ in ☉ 11h. 24m.	14	♂ stationary	20	☉ in ☉ 19h. 59m.
24	♀ in aphelio	15	♂ ☉ ☉ 8h.	22	♂ ♀ ☉ 17h.
25	♂ stationary	16	☉ in perigeo	24	♂ in aphelio
29	♂ ♀ ☉ 1/2 h.	16	☉ eclipsed, invisible	27	☉ in apogeo
		19	♂ stationary	28	☉ in perihelio
		20	♂ ♀ ☉ oh.		
		21	☉ in ☉ 7h. 37m.		
		21	☉ ☉ 24 16h.		
		22	♂ elong. max.		
		25	♂ ♀ ☉ 7h.		
		30	☉ in apogeo		

A Table of the Sun's semi-diurnal Arches, or Times

The Sun's Declination North.

Degt.	Lat. 49		Lat. 50		Lat. 51		Lat. 52		Lat. 53		Lat. 54	
	h	m	h	m	h	m	h	m	h	m	h	m
10	6	4	6	4	6	4	6	4	6	4	6	4
11	6	8	6	8	6	8	6	9	6	9	6	9
12	6	12	6	13	6	13	6	14	6	14	6	15
13	6	17	6	18	6	18	6	19	6	19	6	29
14	6	22	6	22	6	22	6	24	6	25	6	25
15	6	26	6	27	6	27	6	29	6	30	6	31
16	6	31	6	32	6	33	6	34	6	36	6	37
17	6	36	6	37	6	38	6	40	6	41	6	43
18	6	41	6	42	6	43	6	45	6	47	6	48
19	6	45	6	47	6	48	6	50	6	52	6	54
20	6	50	6	52	6	54	6	56	6	58	7	0
21	6	55	6	57	6	59	7	1	7	3	7	6
22	7	0	7	2	7	4	7	7	7	9	7	12
23	7	5	7	7	7	10	7	12	7	15	7	18
24	7	10	7	13	7	15	7	18	7	21	7	24
25	7	15	7	18	7	21	7	24	7	27	7	31
26	7	21	7	24	7	27	7	30	7	33	7	37
27	7	26	7	29	7	33	7	36	7	40	7	44
28	7	31	7	35	7	38	7	42	7	46	7	51
29	7	37	7	41	7	45	7	49	7	53	7	58
30	7	43	7	47	7	51	7	55	8	0	8	5
31	7	49	7	53	7	57	8	2	8	7	8	12
32	7	55	7	59	8	4	8	9	8	14	8	20
33	8	1	8	6	8	11	8	16	8	22	8	28
34	8	7	8	12	8	18	8	24	8	30	8	36

By these Tables the Times of the Sun's Rising and Setting may be found, in any Part of the Kingdom of *Great-Britain* or *Ireland*, after the following Manner: Where the Latitude of the Place is known, take the Sun's Declination out of the Table, on the Noon of the Day you desire to know the Time of his Rising and Setting; and with it, according as it is either North or South, enter these Tables in the Left-

of his visible half Duration above the Horizon.

The Sun's Declination South.

Degr.	Lat. 49		Lat. 50		Lat. 51		Lat. 52		Lat. 53		Lat. 54	
	h	m	h	m	h	m	h	m	h	m	h	m
0	6	4	6	4	6	4	6	4	6	4	6	4
1	5	59	5	59	5	58	5	58	5	58	5	58
2	5	54	5	54	5	53	5	53	5	53	5	53
3	5	49	5	49	5	49	5	48	5	48	5	47
4	5	45	5	44	5	44	5	43	5	42	5	42
5	5	40	5	39	5	39	5	38	5	37	5	36
6	5	35	5	35	5	34	5	33	5	31	5	30
7	5	31	5	30	5	29	5	27	5	26	5	25
8	5	26	5	25	5	23	5	22	5	21	5	19
9	5	21	5	20	5	18	5	17	5	16	5	13
10	5	17	5	15	5	13	5	11	5	10	5	8
11	5	12	5	10	5	8	5	6	5	4	5	2
12	5	7	5	5	5	3	5	0	4	58	4	56
13	5	2	5	0	4	57	4	55	4	52	4	50
14	4	57	4	54	4	52	4	49	4	47	4	44
15	4	52	4	49	4	46	4	44	4	41	4	37
16	4	46	4	45	4	41	4	38	4	34	4	31
17	4	41	4	38	4	35	4	32	4	28	4	23
18	4	36	4	33	4	29	4	26	4	22	4	18
19	4	30	4	27	4	23	4	19	4	15	4	11
20	4	25	4	21	4	17	4	13	4	9	4	4
21	4	19	4	15	4	11	4	6	4	2	3	57
22	4	13	4	9	4	4	4	0	3	55	3	50
23	4	7	4	2	3	58	3	53	3	47	3	42
24	4	1	3	56	3	51	3	46	3	40	3	34

Left-hand Column, under the Word Degrees; then look the Latitude of the Place in the Top of the Table; and in that Column, against the Sun's Declination, will be found the Time of his visible half Duration above the Horizon, or Time of his Setting, correct by Refraction; then subtract the Time of his Setting from 12 Hours, the Remainder will be the Time of his Rising; double the Time of his Setting, the

A Table of the Sun's semi-diurnal Arches, or Times

The Sun's Declination North.

Degr.	Lat. 55		Lat. 56		Lat. 57		Lat. 58		Lat. 59		Lat. 60	
	h	m	h	m	h	m	h	m	h	m	h	m
0	6	4	6	4	6	4	6	4	6	4	6	4
1	6	9	6	10	6	10	6	10	6	11	6	11
2	6	15	6	16	6	16	6	17	6	17	6	18
3	6	21	6	22	6	22	6	23	6	24	6	25
4	6	27	6	28	6	29	6	30	6	31	6	32
5	6	32	6	34	6	35	6	36	6	38	6	39
6	6	38	6	40	6	41	6	43	6	44	6	46
7	6	44	6	46	6	48	6	49	6	51	6	53
8	6	50	6	52	6	54	6	56	6	58	7	1
9	6	56	6	58	7	1	7	3	7	5	7	8
10	7	2	7	5	7	7	7	10	7	13	7	16
11	7	8	7	10	7	14	7	17	7	20	7	23
12	7	15	7	18	7	21	7	34	7	27	7	31
13	7	21	7	24	7	28	7	31	7	35	7	39
14	7	28	7	31	7	35	7	39	7	43	7	47
15	7	34	7	39	7	42	7	46	7	51	7	56
16	7	41	7	45	7	49	7	54	7	59	8	4
17	7	48	7	52	7	57	8	1	8	7	8	13
18	7	55	8	0	8	5	8	10	8	16	8	22
19	8	2	8	7	8	13	8	19	8	25	8	32
20	8	10	8	15	8	21	8	28	8	35	8	42
21	8	18	8	24	8	30	8	37	8	45	8	53
22	8	26	8	32	8	39	8	47	8	55	9	4
23	8	34	8	41	8	49	8	57	9	6	9	16
24	8	43	8	51	8	59	9	8	9	18	9	29

the Sum will be the Length of the Day; and double the Time of his Rising, the Sum will be the Length of the Night. But if the Latitude of the Place, and Declination of the Sun, consist of Degrees and Minutes, then a small Allowance must be made for the Minutes in both Cases, which may be done by a Person of an ordinary Capacity by a mental Proportion only. Thus, to find the Time of the Sun's Rising and Setting at

of his visible half Duration above the Horizon.

The Sun's Declination South.

Degr.	Lat. 55		Lat. 56		Lat. 57		Lat. 58		Lat. 59		Lat. 60	
	h	m	h	m	h	m	h	m	h	m	h	m
0	6	4	6	4	6	4	6	4	6	4	6	4
1	5	58	5	58	5	58	5	58	5	57	5	57
2	5	52	5	52	5	52	5	51	5	51	5	50
3	5	47	5	46	5	45	5	45	5	44	5	43
4	5	41	5	40	5	39	5	38	5	37	5	36
5	5	35	5	34	5	33	5	32	5	31	5	29
6	5	29	5	28	5	27	5	25	5	24	5	22
7	5	23	5	22	5	20	5	19	5	17	5	15
8	5	17	5	16	5	14	5	12	5	10	5	8
9	5	12	5	10	5	8	5	5	5	3	5	2
10	5	5	5	3	5	1	4	59	4	56	4	53
11	4	59	4	57	4	54	4	52	4	49	4	46
12	4	53	4	51	4	48	4	45	4	42	4	38
13	4	47	4	44	4	41	4	38	4	34	4	30
14	4	41	4	37	4	34	4	30	4	27	4	23
15	4	34	4	31	4	27	4	23	4	19	4	14
16	4	27	4	24	4	20	4	15	4	11	4	6
17	4	21	4	17	4	12	4	8	4	3	3	57
18	4	14	4	9	4	5	4	0	3	54	3	48
19	4	7	4	2	3	56	3	51	3	45	3	39
20	3	59	3	54	3	49	3	43	3	36	3	29
21	3	52	3	46	3	40	3	34	3	27	3	19
22	3	44	3	38	3	31	3	24	3	17	3	9
23	3	36	3	29	3	23	3	15	3	6	2	57
24	3	27	3	20	3	13	3	5	2	55	2	45

at Aberdeen in Scotland, on the Longest Day; the Latitude of that Place is accounted 57 Degr. 7 Min. North, and the Sun's Declination 23 Degr. 28 Min. likewise North. By these you will find by the Table, that 5 Min. for the Sun's Declination, and 1 Min. for the Latitude of the Place, are both, to be added to 8 Hours 49 Min. the Time belonging to 57 Degr. of Latitude and 23 Degr. of North Declination, and the Sum will be 8 Hours 55 Min. the Time of his apparent Setting at Aberdeen, on the longest Day, whose Complement to 12 Hours, viz. 3 Hours 5 Min. will be the Time of his Rising, &c.

A Table of the Sun's Right-Ascension in Time, the greatest

Decl.	♈			♉			♊			♋			♌			♍		
	h	m	s	h	m	s	h	m	s	h	m	s	h	m	s	h	m	s
0	0	0	0	1	51	37	3	51	15	6	0	0	8	8	45	10	8	23
1	0	3	40	1	55	27	3	55	25	6	4	22	8	12	54	10	12	12
2	0	7	20	1	59	17	3	59	36	6	8	43	8	17	3	10	16	0
3	0	11	0	2	3	8	4	3	48	6	13	5	8	21	11	10	19	48
4	0	14	41	2	6	59	4	8	0	6	17	26	8	25	19	10	23	35
5	0	18	21	2	10	51	4	12	13	6	21	48	8	29	26	10	27	22
6	0	22	2	2	14	44	4	16	26	6	26	9	8	33	31	10	31	8
7	0	25	42	2	18	37	4	20	40	6	30	30	8	37	37	10	34	54
8	0	29	23	2	22	31	4	24	55	6	34	51	8	41	41	10	38	40
9	0	33	4	2	26	25	4	29	10	6	39	11	8	45	45	10	42	25
10	0	36	45	2	30	20	4	33	26	6	43	31	8	49	48	10	46	9
11	0	40	26	2	34	16	4	37	42	6	47	51	8	53	51	10	49	53
12	0	44	8	2	38	13	4	41	59	6	52	11	8	57	52	10	53	37
13	0	47	50	2	42	10	4	46	16	6	56	31	9	1	53	10	57	20
14	0	51	32	2	46	8	4	50	34	7	0	50	9	5	53	11	1	3
15	0	55	14	2	50	7	4	54	52	7	5	8	9	9	53	11	4	46
16	0	58	5	2	54	7	4	59	10	7	9	26	9	13	52	11	8	28
17	1	2	40	2	58	7	5	3	29	7	13	44	9	17	50	11	12	10
18	1	6	23	3	2	8	5	7	49	7	18	1	9	21	47	11	15	52
19	1	10	7	3	6	9	5	12	9	7	22	18	9	25	44	11	19	34
20	1	13	51	3	10	12	5	16	29	7	26	34	9	29	40	11	23	15
21	1	17	35	3	14	15	5	20	49	7	30	50	9	33	35	11	26	56
22	1	21	20	3	18	19	5	25	9	7	35	5	9	37	29	11	30	37
23	1	25	6	3	22	23	5	29	30	7	39	20	9	41	23	11	34	18
24	1	28	52	3	26	29	5	33	51	7	43	34	9	45	16	11	37	58
25	1	32	38	3	30	35	5	38	12	7	47	47	9	49	9	11	41	39
26	1	36	25	3	34	41	5	42	34	7	52	0	9	53	1	11	45	19
27	1	40	12	3	38	49	5	46	55	7	56	12	9	56	52	11	49	0
28	1	44	0	3	42	57	5	51	17	8	0	24	10	0	43	11	52	40
29	1	47	48	3	47	6	5	55	38	8	4	35	10	4	33	11	56	20
30	1	51	37	3	51	15	6	0	0	8	8	45	10	8	23	12	0	0

The time of the southing or meridian transits of the fixed stars in pa. 46, may be found thus. On the noon of the day, preceding the night in which you want to know the time of the southing of any of those stars, find the Sun's place in the Ephemeris, and with it take out of the above table his right ascension in time; this you may do by inspection to a minute, which will be sufficient for your present purposes. Then from the right-ascension of the star in pa. 46, subtract the right ascension of the Sun, the remainder will be the estimate time of the star's southing, and will not differ from the true time above 2 or 3 minutes at most, which may be near enough for ordinary uses. But when great exactness is required, reduce the Sun's place to this estimate time, and with it find in the above table his right ascension to seconds, which being subtracted from that of the star, the remainder will be the

Obliquity of the Ecliptic being $23^{\circ} 28'$.

Degr.	α			β			γ			δ			ϵ		
	h	m	s	h	m	s	h	m	s	h	m	s	h	m	s
0	12	0	0	13	51	37	15	51	15	18	0	0	20	8	45
1	12	3	40	13	55	27	15	55	25	18	4	22	20	12	54
2	12	7	20	13	59	17	15	59	36	18	8	43	20	17	3
3	12	11	0	14	3	8	16	3	48	18	13	5	20	21	11
4	12	14	41	14	6	59	16	7	0	18	17	26	20	25	19
5	12	18	21	14	10	51	16	12	13	18	21	48	20	29	26
6	12	22	2	14	14	44	16	16	26	18	26	9	20	33	31
7	12	25	42	14	18	37	16	20	40	18	30	30	20	37	37
8	12	29	23	14	22	31	16	24	55	18	34	51	20	41	41
9	12	33	4	14	26	25	16	29	10	18	39	11	20	45	45
10	12	36	45	14	30	20	16	33	26	18	43	31	20	49	48
11	12	40	26	14	34	16	16	37	42	18	47	51	20	53	51
12	12	44	8	14	38	13	16	41	59	18	52	11	20	57	52
13	12	47	50	14	42	10	16	46	16	18	56	31	21	1	53
14	12	51	32	14	46	8	16	50	34	19	0	50	21	5	53
15	12	55	14	14	50	7	16	54	52	19	5	8	21	9	53
16	12	58	57	14	54	7	16	59	10	19	9	26	21	13	52
17	13	2	40	14	58	7	17	3	29	19	13	44	21	17	50
18	13	6	23	15	2	8	17	7	49	19	18	1	21	21	47
19	13	10	7	15	6	9	17	12	9	19	22	18	21	25	44
20	13	13	51	15	10	12	17	16	29	19	26	34	21	29	40
21	13	17	35	15	14	15	17	20	49	19	30	50	21	33	35
22	13	21	20	15	18	19	17	25	9	19	35	5	21	37	29
23	13	25	6	15	22	23	17	29	30	19	39	20	21	41	23
24	13	28	52	15	26	29	17	33	51	19	43	34	21	45	16
25	13	32	38	15	30	35	17	38	13	19	47	47	21	49	9
26	13	36	25	15	34	41	17	42	34	19	52	0	21	53	1
27	13	40	12	15	38	49	17	46	55	19	56	12	21	56	52
28	13	44	0	15	42	57	17	51	17	20	0	24	22	0	43
29	13	47	48	15	47	6	17	55	38	20	4	35	22	4	33
30	13	51	37	15	51	15	18	0	0	20	8	45	22	8	23

the true time of the star's culminating or southing. And if from the time of the star's southing you subtract the semidiurnal arc belonging to it, the remainder will be the time of the star's rising; and being added to it, the sum will be the time of its setting.

Annexed is an Ex. of SIRIUS for Jan. 31, 1789.

$\odot$'s place at noon $\approx 11^{\circ} 24'$	h	m	s
Rt. Asc. of Sirius - -	6	35	33
$\odot$'s rt. asc. subtract -	20	59	0
*'s estimate southing -	9	56	33
$\odot$'s rt. asc. at that time sub.	21	0	13
*'s true southing - -	9	35	20
Semid. arc sub. & add -	4	36	55
*'s rising aftern. - -	4	58	25
*'s setting - -	14	12	15

A Table of the mean Right-Ascensions in time, Semidurnal-Arcs, Declinations, and Magnitudes of 40 remarkable fixed Stars, with their Names, and Bayer's Literal Characters, for January 1, 1782.

Names of the Stars	Ch.	Rt. Asc.			Declination			Semid. Ar.			Ma	
		h	m	s	°	'	"	h	m	s		
Pole star, Alruccabah -	α	0	48	3	88	8	36	n	sets	not	2	
Andromeda's girdle, Mirach -	β	0	57	36	34	27	35	n	10	7	32	2
Andromeda's left foot, Almach	γ	1	50	36	41	16	30	n	sets	not	2	
Ram's following horn -	α	1	54	56	22	25	27	n	8	9	35	2
Whale's jaw, Menkar -	α	2	50	54	3	13	26	n	6	19	48	2
Medusa's head, Algol - -	β	2	54	44	6	6		n	sets	not	2	
Perseus's right side, Algenib	α	3	8	51	49	4	11	n	sets	not	2	
Brightest of the 7 stars - -	α	3	34	34	23	25	2	n	8	16	40	3
Bull's south eye, Aldebaran	α	4	23	26	16	3	23	n	7	28	51	1
Auriga's left shoulder, Capella	α	5	0	37	45	44	59	n	sets	not	1	
Orion's left foot, Rigel -	β	5	4	4	8	28	3	s	5	20	28	1
Bull's north horn -	β	5	12	32	28	24	22	n	8	57	1	2
Orion's left shoulder, Bellatrix	γ	5	13	27	6	8	10	n	6	34	41	2
Orion's girdle -	α	5	25	10	1	21	24	s	5	56	42	2
Orion's right shoulder, Betelgeuse	α	5	43	23	7	20	59	n	6	40	58	1
In the great Dog's mouth, Sirius	α	6	35	33	16	25	14	s	4	36	55	1
Head of the 1st Twin, Castor	α	7	20	41	32	20	54	n	9	38	21	1
In the left Dog's thigh, Procyon	α	7	27	54	5	46	41	n	6	32	50	1
Head of the 2d Twin, Pollux	β	7	31	59	28	32	14	n	8	58	13	2
Hydra's heart, Alphard -	α	9	16	53	7	43	21	s	5	24	20	2
Lion's heart, Regulus -	α	9	56	45	13	1	32	n	7	11	28	1
Great Bear, Lower Pointer	β	10	48	34	57	32	47	n	sets	not	2	
Great Bear, Upper Pointer -	α	10	50	8	62	55	27	n	sets	not	2	
Lion's tail, Deneb - -	β	11	37	56	15	47	28	n	7	27	18	2
Great Bear, 1st in the tail, Aliath	α	12	44	22	57	8	46	n	sets	not	2	
Virgins's spike - -	α	13	13	44	10	1	2	s	5	12	20	1
Dragon's tail - -	α	13	58	30	65	25	19	n	sets	not	2	
Bootes, Arcturus -	α	14	5	46	20	20	5	n	7	55	26	1
Libra, Southern Scale - -	α	14	38	52	15	7	26	s	4	44	23	2
Libra, Northern Scale - -	β	15	5	18	8	33	59	s	5	19	57	2
Bright star in the North Crown	α	15	25	28	27	27	35	n	8	48	36	2
Scorpion's heart, Antares	α	16	16	4	25	55	50	s	3	34	6	1
Hercules's head, Raf, Algethi	α	17	4	43	14	39	8	n	7	20	41	2
Head of Serpentarius - -	α	17	24	49	12	44	2	n	7	9	50	2
Dragon's head, Raftaben -	γ	17	51	34	51	31	19	n	sets	not	2	
Bright star in the Harp, Lyra	α	18	29	33	38	35	19	n	sets	not	1	
Bright star in the Eagle, Atair	α	19	40	8	8	18	10	n	6	45	57	2
Mouth of south Fish, Fomalhaut	α	22	45	34	30	46	17	s	2	52	6	1
Pegasus's wing, Markab -	α	22	53	55	14	2	8	n	7	17	10	2
Andromeda's head - -	α	23	57	9	27	53	2	n	8	52	19	2

A Table of the Longitudes, Latitudes, and Magnitudes of the most remarkable fixed Stars that the Moon can Eclipse, or make a near Appulse unto; exactly rectified to the beginning of the year 1780.

Con.	Cha.	Long.	Lat.	Mag.	Con.	Cha.	Long.	Lat.	Mag.
♏	♏	11 4 48	2 9 44 n	4	♏	♏	12 1 6	0 21 48 n	2
	♏	14 28 2	1 5 37 n	4	♏	♏	17 56 14	1 49 14 s	3
	♏	16 48 2	0 13 11 s	4	♏	♏	22 3 46	4 24 41 n	3
♏	♏	17 46 21	1 48 7 n	4	♏	♏	24 18 10	4 2 52 n	4
	♏	26 55 21	4 1 36 n	3	♏	♏	24 41 24	0 1 1 n	4
	♏	2 43 37	5 45 30 s	3	♏	♏	26 47 49	3 29 24 n	4
	♏	5 23 14	2 35 37 s	3	♏	♏	27 24 23	0 6 53 n	4
	♏	6 42 57	5 29 2 s	1	♏	♏	29 30 5	1 57 17 s	3
	♏	19 30 14	5 21 59 n	2	♏	♏	29 52 12	5 26 15 s	3
	♏	21 42 52	2 13 29 s	3	♏	♏	♏ 0 7 10	1 2 18 n	2
♏	♏	♏ 0 22 14	0 55 4 s	4	♏	♏	1 34 27	1 39 52 n	4
	♏	2 13 39	0 50 34 s	3	♏	♏	4 43 50	4 0 23 s	4
	♏	5 1 57	6 46 12 s	2	♏	♏	6 41 35	4 32 17 s	1
	♏	6 52 7	2 2 28 n	3	♏	♏	8 23 19	6 5 21 s	4
	♏	15 27 6	0 12 19 s	3	♏	♏	28 11 40	6 56 48 s	3
	♏	20 11 11	6 40 4 n	1	♏	♏	♏ 0 8 35	2 22 24 n	4
♏	♏	4 28 28	3 10 22 n	4	♏	♏	3 15 8	2 5 31 s	4
	♏	5 30 46	0 4 13 n	4	♏	♏	7 6 25	3 55 22 s	3
♏	♏	18 35 0	3 1 57 s	4	♏	♏	9 18 54	3 24 55 s	3
	♏	21 11 15	3 46 1 s	4	♏	♏	11 46 9	5 2 33 s	3
	♏	24 50 0	4 51 9 n	4	♏	♏	11 55 13	0 53 36 n	3
	♏	26 46 26	0 27 27 n	1	♏	♏	13 10 58	1 28 7 n	4
	♏	3 19 2	0 8 29 n	4	♏	♏	♏ 0 58 32	4 36 46 n	3
	♏	18 26 24	0 31 21 s	4	♏	♏	17 7 37	4 57 31 s	4
	♏	21 58 9	3 2 51 s	4	♏	♏	18 42 30	2 32 6 s	4
♏	♏	24 2 24	0 41 36 n	3	♏	♏	20 27 42	2 33 40 s	3
	♏	♏ 0 17 47	5 4 42 n	3	♏	♏	25 38 54	2 3 47 s	4
	♏	1 45 53	1 22 24 n	3	♏	♏	♏ 0 11 19	2 43 22 n	4
	♏	7 6 18	2 48 57 n	3	♏	♏	8 30 20	0 22 57 s	4
	♏	20 46 27	2 2 11 s	1	♏	♏	14 4 16	1 2 8 s	4

This table shewing the mean longitudes of 60 stars to the beginning of the year 1780, their mean longitudes for any other time may be found if $50\frac{1}{2}$ seconds be added for each succeeding, and subtracted for each preceding year, and proportionably for a part of a year. Thus, to find the longitude of the first star ♏♏, or ♏ piscium, for Feb. 15, 1782, or 2 years and one eighth after the tabular time; here $2\frac{1}{8}$ times $50\frac{1}{2}$ sec. make $1' 47''$, which being added to the tabular longitude, gives ♏ $11^{\circ} 6' 35''$ for the longitude required at the given time.—The latitudes vary not.

The Latitudes and Longitudes of Ninety Places.

	Lat.	Long.		Lat.	Long.
	° ' "	° ' "		° ' "	° ' "
Alexandria, Egypt	31 11 n	30 17 e	Isfahan	32 25 n	52 55 e
Amsterdam, Hol.	52 23 n	4 52 e	Land's end	50 6 n	5 50 w
Archangel, Ruf.	64 34 n	38 30 e	Leghorn	43 33 n	10 25 e
Athens	37 40 n	23 52 e	Leostoff	52 38 n	1 54 e
Babelmandel	12 50 n	43 50 e	Liverpool	53 22 n	3 10 w
Batavia	6 12 s	106 45 e	Lima	12 18 s	76 50 w
Bengal	22 0 n	92 45 e	Lisbon	38 42 n	9 4 w
Berlin	52 33 n	13 26 e	Lizard	49 57 n	5 21 w
Bombay Isle	19 42 n	73 3 e	London	51 31 n	0 0
Boston, Amer.	42 25 n	70 37 w	Madras	13 8 n	80 7 e
Bresslau	51 3 n	17 13 e	Madrid	40 25 n	3 45 w
Brest	48 23 n	4 30 w	Manila	14 30 n	120 25 e
Bristol	51 28 n	2 30 w	Marseilles	43 18 n	5 21 e
Buenos Ayres	34 35 s	58 0 w	Mexico	19 54 n	100 5 w
Cadiz	36 31 n	6 7 w	Mississipi, mouth	29 0 n	89 17 w
Calais	50 58 n	1 51 e	Moscow	55 25 n	37 51 e
Cairo, Egypt	30 2 n	31 26 e	Naples	40 51 n	14 19 e
Cambridge	52 13 n	0 4 e	Newcastle	55 0 n	1 18 w
Canaria Islands	28 1 n	15 0 w	Oporto	40 53 n	8 35 w
Canton	23 8 n	113 2 e	Orkney I. northend	59 24 n	3 23 w
Cape of Goodhope	34 29 s	18 23 e	Oxford	51 45 n	1 16 w
Cape Horn	55 59 s	67 26 w	Paris	48 50 n	2 25 e
Carthegena	10 27 n	75 26 w	Pekin	39 55 n	116 22 e
Charles Town Am.	33 22 n	79 50 w	Petersburg	59 56 n	30 19 e
Constantinople	41 0 n	28 53 e	Philadelphia	39 57 n	75 18 w
Copenhagen	55 41 n	12 50 e	Plymouth	50 24 n	4 15 w
Corinth	37 30 n	23 0 e	Port Mahon	39 51 n	3 53 e
Corke	51 54 n	8 30 w	Port Royal, Jam.	17 40 n	76 37 w
Dantzic	54 22 n	18 36 e	Portsmouth	50 48 n	1 1 w
Dover	51 7 n	1 19 e	Prague	50 5 n	14 15 e
Dublin	53 12 n	6 55 w	Quebec	46 55 n	71 12 w
Edinburgh	55 58 n	3 1 w	Rome	41 54 n	12 32 e
Ferro, Isle	27 48 n	18 6 w	Scilly Isles	50 0 n	6 45 w
Finisterre, Cape	42 57 n	9 36 w	Smyrna	38 28 n	27 25 e
Genoa	44 25 n	8 41 e	Stockholm	59 22 n	18 12 e
Gibraltar	36 5 n	4 46 w	Syracuse	37 4 n	15 20 e
Glasgow	55 52 n	4 5 w	Tangier	35 55 n	5 45 w
Goa	15 31 n	73 50 e	Teniff	28 16 n	16 32 w
Göttingen	51 32 n	9 58 e	Tunis	36 47 n	10 16 e
Greenwich	51 29 n	0 5 e	Turin	45 5 n	7 45 e
Hacluit's Head.	79 55 n	12 0 e	Venice	45 27 n	12 24 e
Halifax, America	44 46 n	63 20 w	Verd, Cape	14 47 n	17 28 w
Havanna	23 12 n	81 11 w	Vienna	48 11 n	16 28 e
Helena, I. St.	15 55 s	5 49 w	Upsal	59 52 n	17 43 e
Jerusalem	31 50 n	35 25 e	Uraniberg	55 54 n	12 52 e

ong.

1
55 e
50 w
25 e
54 e
10 w
50 w
4 w
21 w
0
7 e
45 w
25 e
21 e
5 w
17 w
51 e
19 e
18 w
35 w
23 w
16 w
25 e
22 e
19 e
8 w
5 w
3 e
7 w
1 w
5 e
2 w
2 e
5 w
5 e
2 e
0 e
5 w
2 w
6 e
5 e
4 e
3 w
3 e
3 e
2 e